



OHFOOD


An Ohio Food Industries
Input-Output Model

Version 3.0

The Ohio State University

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ES0-2281

This research was partially funded by the Farm Income Enhancement Program, Department of Agricultural Economics, The Ohio State University. Income Enhancement Study No. 202, ESO No. 2281, October 1995. Version 3.0 supersedes OHFOOD Version 2.0, June 1993. 

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Income Enhancement Study Series

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An Ohio Food Industries Input-Output Model

Version 3.0

October 1995

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Income Enhancement Program
The Ohio State University

OHFOOD: An Ohio Food Industries Input-Output Model

(Version 3.0)

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OHFOOD: An Ohio Food Industries Input-Output Model (Version 3.0)

by
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Abstract

This manuscript provides the basic documentation for a sophisticated input-output model, called **OHFOOD** for Ohio food. The model is designed specifically to capture the interdependencies and linkages among various industries composing the complex economy of Ohio. The input-output model of Ohio's economy also maintains a high degree of detail on the food and agricultural sectors. The interindustry model describes the linkages among various sectors of the economy and provides estimates of the economic influence that expansion of the agricultural and food sectors have on the general manufacturing and service sectors of the economy. Also, **OHFOOD** may be used to investigate the economic influence of "shocks" to the economy, such as entry of new firms into the state.

This documentation provides a succinct analysis of the importance of food and agriculture to the state's economy, based on the interindustry model. The analysis indicates that for 1992 the food and agricultural sectors of Ohio's economy contribute approximately 13 percent of the output, 11 percent of the value added, 16 percent of the total employment, and 11 percent of total income.

Of the 5 basic components within the food and forestry production and distribution chain, the food and forestry processing sector is the largest in terms of output, but the food and forestry wholesaling and retailing sectors and the food service sector are the most significant in terms of employment. The entire food and agriculture complex accounts for over 935,400 jobs in Ohio, or about 1 of every 6 jobs.

Keeping this model updated with the latest data available is an on-going task of the Farm Income Enhancement Program and the Agribusiness Research Group within the Department of Agricultural Economics of The Ohio State University.

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OHFOOD: An Ohio Food Industries Input-Output Model

Introduction

Measuring production in an economy can be insightful in terms of relationships among various industrial groups. A technique known as input-output modeling endeavors to account for the interdependence of production activities of many different industries comprising the economy. The interdependence captured in the model arises because each industry employs the outputs of other industries as its raw materials. In addition, its output may be used by other producers, or industries, as a factor of production.

To illustrate linkages and interdependencies, consider corn production. Some output from this production activity is input into dry and wet corn milling. Some co-product output from milling is input into livestock feed (e.g. corn gluten feed) as is some output directly from corn production. Moving closer to the consumer level, some output from the milling industry is high-fructose corn syrup (HFCS) which in turn is input into the soft drink manufacturing industry. Quantifying, or measuring, these interdependencies and linkages can reveal how much of each industry's output is consumed by other industries compared to how much is available for final consumption or net output.

The food marketing system may be viewed as consisting of five basic components which are vertically linked and interdependent, in an economic sense. The five basic components are farm inputs and machinery, farm produc-

tion, food and forestry processing, the wholesaling and retailing of food and forestry products, and ultimately food service. A diagram of the simplified economic linkages among the five food and agriculturally - related components is provided in Figure 1. The four elliptical shapes of the diagram represent final demand components for the output of the other five stages. The arrows indicate economic flows, in terms of dollars of output, from one sector which becomes input to another sector.

For each industry or sector of the economy, estimates of the amount of direct purchases per dollar of output are obtained from the interindustry model. In addition, other economic measures of interest derived for each sector of the economy from the input-output model include total employment, value added, and the total dollar value of output. Each of these economic indicators measures different, yet related, interdependence among the various sectors of the economy.

Another useful indicator from input-output analysis is the "multiplier." An output multiplier for a sector, for example, measures the additional value of production of all sectors of the economy necessary to satisfy an extra dollar demanded from that specific sector. Output multipliers can be the basis for analyzing the importance of each industry in terms of its overall influence on the economy.

Other multipliers include income and employment. An income multiplier is a measure of the intuitive notion that income earned by one individual or industry is spent and becomes income to a second individual or industry. In turn, the second individual spends a portion of that income so that it becomes income to yet another individual. The income multiplier relates an increment in the income of one sector to an increment of income of other sectors. In essence, when expenditures from one sector increase, the income of other sectors will increase in some multiple of the original increment.

Finally, employment multipliers are derived from output multipliers simply by converting from an output to employment base. The "total effect" multipliers indicate the number of jobs created for each \$1 million expansion in demand in their industries. The employment multiplier estimated here for each Ohio sector relates an increment in the employment within that sector to an increment in employment among all other sectors. These multipliers provide information on how much additional production or number of jobs will result from an increase in demand in a specified sector. Likewise, such a multiplier will indicate the total decline in production or number of jobs within the economy if curtailment occurs in a given sector. All of these measures serve to describe both the linkages among sectors within the economy and the relative importance of each sector to the total economy.

Simulation of the economic impact of new firms or changes in existing firms within an industry is one of the most powerful features of an input-output model. New firms may occur either through new plants or facilities that represent net additions to the industry, or by firms relocating to Ohio from outside Ohio. The model allows the Ohio economy to be

"shocked" by adding a new firm of a specific output size, and to trace the influence of such an event on the entire economy, sector by sector. Such a simulation provides useful information for judging priorities on economic development within a geographic area. The input-output model enables "what-if" scenarios to be analyzed in terms of tracing the effects of changes in one sector on other sectors.

An Ohio Model: OHFOOD

Sector Definition

An input-output model of the state's economy captures interindustry economic relationships and provides information on the relative importance of various sectors of the economy. **OHFOOD**, an acronym for **Ohio Food**, is an input-output model composed of 43 sectors defined in a manner to emphasize agriculture and processed food and forestry products, distribution and retailing of food and forestry products, and food consumption. Many of the 43 sectors are defined based upon the aggregation of similar industries. For example, the "Nursery/ Horticulture" sector of **OHFOOD** is defined to include the grass seeds industry, the greenhouse and nursery products industry, and the landscape and horticultural services industry.

The specific definition of sectors within **OHFOOD** was accomplished by maintaining substantial detail among the agricultural production and food-forestry processing-distribution sectors, but aggregating many other non-food industries into relatively large composite sectors. The specific food and related agricultural sectors of **OHFOOD** are farm inputs and machinery production, dairy farm products, poultry and egg production, cattle feeding, sheep and goat production (and

other miscellaneous livestock), swine production, food grain production, feed grain production, hay/sugar/nut crop production (and other miscellaneous crops), fruits and vegetables, oil bearing crops, forestry/fishing production, nursery/horticulture production, meat and egg processing, dairy processing, processed food and kindred products, wood processing/paper production/wood furniture manufacturing, grain milling and flour production, beverage processing (mostly soft drink and liquor production), fats and oils production, food and forestry wholesaling and retailing, and finally food service (restaurants, institutional, and other retail food service; excluding hotel and motel food service). **OHFOOD** is comprised of 22 sectors related to food and agriculture and 21 sectors which are based on the general manufacturing and service sectors of the entire economy. The precise and detailed four-digit 1992 Standard Industrial Classification (SIC) definition of each sector defined within **OHFOOD** is provided in Appendix Table A-1.

Methods

The **OHFOOD** model is based on *IMPLAN*, an input-output algorithm for the national economy using non-survey based data (University of Minnesota). *IMPLAN* is based on a procedure developed by the U.S. Forest Service for estimating input-output models for the United States or subregions (Alward). Estimates of sectoral activity for final demand, final payments, industry output, and employment for the Ohio economy are based on the latest data available for 528 sectors of the United States economy. All price and output information within the model is in 1992 dollars. The technology matrix, often called a matrix of "technical coefficients," is based on 1982 relationships for the national economy. Again, these data are the latest published data

available from the Bureau of Economic Analysis of the U.S. Department of Commerce at the time of this analysis. Detail of the methods of input-output modeling for an economy and the methods used for calculations of multipliers may be found in Miller and Blair.

An input-output model also may be used to identify the relative importance among various food and agriculture sectors of the economy in terms of their potential for increasing output in the general economy of Ohio. This type of analysis compares all industries or sectors based on their estimated output multipliers. The relative ranking of various sectors of the Ohio economy, in terms of influence or "ripple" effects on the rest of the economy, was calculated using the output multipliers reported in detail in Table 5. Prior to comparison among sectors, the output multipliers provided in Table 5 for each sector were deflated by their respective diagonal element of the Leontief inverse matrix, as reported in Table 4. This procedure allows a comparison based on the influence of each sector's output expansion potential, rather than a change in final demand within the Ohio economy.

Analysis of the Ohio Economy

Basic Economic Linkages

An overview of the Ohio economy in 1992 is shown by the total output, value added, and employment for each of 43 endogenous sectors, Table 1. The total economic output for Ohio in 1992 was \$447.4 billion, with total employment of just over 5.92 million persons. The output of food and related agricultural sectors was \$56.2 billion, or about 13 percent of Ohio's total economy, Figure 2. The \$56.2 billion represents about \$1 of every \$8 in output for the entire Ohio economy. The total output of \$56.2 billion may be divided among

the five basic components of the food chain, Figure 2. The largest component is processing food and forestry products, accounting for over \$25.5 billion of this output, or slightly over 45 percent of the total \$56.2 billion food and agriculture output. This \$25.5 billion is composed of \$16.9 billion from food processing and another \$8.6 from value added forestry processing which includes wood processing, paper, and wood furniture manufacturing. Thus, food processing accounts for about \$2 of every \$3 in output from the total food and forestry processing sector.

Agricultural production adds nearly \$5 billion in output, or about 9 percent of the total output from the food and related agricultural sectors of the Ohio economy. The largest component within the agricultural production sector is the nursery and horticultural industries, accounting for over \$1.4 billion in output, or about \$3 in every \$10 in output generated by the farming sector.

The Ohio livestock sectors combined account for over \$1.7 billion in output, or approximately 36 percent of the \$4.7 billion total agricultural production output, excluding forestry production and fishing, Figure 3. Crop and horticultural industries account for the other 65 percent of the total output from the primary agricultural production sectors of livestock, crops, and horticulture, or some \$3.2 billion in output, Figure 4. The largest component of the field crop sectors is oil bearing crops at over \$650 million in output. However, feed grain farm output nearly equals the economic output of the oil bearing crops sector.

Value added is another economic measure of interest. The total value added in the state's economy is \$240.5 billion, with 11 percent or about \$25.7 billion, as value added from the

food and agricultural sectors, Figure 5. Of the \$25.7 billion value added by food and agriculture, 33 percent is attributable to the total food and forestry processing sector while another 30 percent is from the wholesaling and retailing of food and forestry products. Food service accounts for almost \$5.0 billion value added, or about one-fifth of the total value added from all food and related agricultural sectors combined. Finally, the farming sector and the farm inputs and machinery sector each account for another 9 percent of the value added, or some \$2.4 billion each.

The food and related agricultural component of the state's economy contributes over 935,400 jobs, or nearly 1 in every 6 employed in Ohio, Figure 6. The wholesaling and retailing of food and forestry products combined with the food service sectors account for 7 of every 10 jobs in the food and related agricultural sectors, or nearly 647,000 jobs in total. The food and value added forestry processing sectors account for nearly 130,000 jobs, or nearly 14 percent of the total food and related agricultural sector employment. Farm production accounts for over 132,000 jobs and accounts for 1 of every 7 persons employed in the food and related agricultural sector. The smallest sector in terms of employment within the food and related agricultural component is farm inputs and machinery, yet this sector employs over 26,000 persons in Ohio, Table 1.

The food and agricultural complex accounts for over \$1 in every \$10 of total income in the entire state's economy, Figure 7. The food and forestry product processing sector accounts for about \$8.1 billion of a total food and related agricultural sector income of \$23.3 billion, or about 35 percent of the total food and related agricultural sector income. Food and forestry wholesaling and retailing accounts

for another \$6.0 billion, while farm production income is \$2.3 billion, Table 1.

Ohio livestock sectors combined account for \$360 million in income, or approximately 16 percent of the \$2.3 billion total farming income, Figure 8. Dairy farms account for nearly 28 percent of total livestock sector output, while poultry and egg farms account for another 26 percent of the total income from the livestock sector. Cattle feeding accounts for another 23 percent of the total livestock sector income in Ohio.

Of the total Ohio farm income of \$2.3 billion for 1992, crops and horticulture account for over 84 percent, or \$1.9 billion, Figure 9. Nursery and Horticulture accounts for 56% of the total crops and horticulture income. The feed grains and oil bearing crop sectors each account for another 17 percent of the total crops and horticulture income.

Another significant aspect of the food and agricultural component of Ohio's economy is its contribution to exports. **OHFOOD** tracks exports to other states separately from exports to foreign countries, Table 6. Total food and related agricultural sector exports from Ohio to other states were \$22.6 billion in 1992, or nearly 15 cents of every dollar of domestic exports from the entire Ohio economy. Nearly 46 cents of every dollar of output from the food and related agricultural sectors was exported, compared to nearly 40 cents of every dollar of output for the entire Ohio economy.

Of the five major components of the food and agriculture complex, exports are most important to processing, Table 6. Examination of the food and agriculture component of exports to other states reveals that the processing sector exports \$14.6 billion, or 64 percent of

the total food and related agricultural domestic exports of \$22.6 billion, Figure 10. Farm production exports around \$1.5 billion, or about 6 percent of the domestic export total.

Exports to foreign countries are largest for the processing sector at about \$1.1 billion, or 36 cents of every foreign export dollar from the food and agricultural component of Ohio's economy, Figure 11. Farmers and the farm input and machinery sectors combined account for another 49 cents of every foreign export dollar from Ohio's food and related agricultural sectors.

Industry Interdependence - Dollar Flows

Input-output models consist of three main components: the transaction flow table, the technical coefficients table, and the interdependence coefficients table. The transaction flow table shows all the transactions between the various sectors in an economy. This table can be used to produce a table of technical coefficients which indicate the amount of each input required to produce one unit of output. The interdependence coefficients can be used to estimate the impact on the entire economy of a change in any one sector. The derivations and analysis of these tables follow.

The transactions flow table is the core of the input-output model. Information in this table is used to derive the other tables. The economy is divided into processing or production sectors, final demand sectors (household consumption and exports), and primary input sectors (labor and imports). The flow table is a matrix where each row shows the sales by the sector on the left side to each sector composing the columns of the table. Similarly, each column of the table shows the purchases by the sector of that column from each of the

other sectors (comprising the rows of the table).

The Ohio transactions flow is in Table 2. An example of the interpretation of selected transaction flows recorded in Table 2 illustrates the meaning of the numbers in this table. To illustrate, the second column shows that dairy farms buy \$285,900 of inputs from other dairy farms, \$19.16 million worth from the hay/sugar/nut crops sector (primarily hay), \$30.64 million from the feed grains sector, \$101.0 million of labor, and \$332.0 million of imports to produce \$573.4 million in output. Imports are inputs purchased outside the region. Competitive imports are inputs purchased from sectors currently located in Ohio; non-competitive imports are inputs purchased from sectors not found in Ohio.

Interpretation of selected numbers from the second row of Table 2 shows that dairy farms' product sales are distributed as follows: \$285,900 sold to other dairy farms, \$616,330 to the cattle feeding sector, \$1.07 million to the feed grains sector, \$504.48 million to the dairy processing sector, \$977,290 to food service, and \$36.86 million to exports (outside Ohio) in the final demand sectors. In general, the columns provide the purchases from each sector of the economy while the rows provide the amount of output sold from the individual sector to each of the other sectors of the economy.

Finally, transactions within the transaction flows table are constrained by linear fixed coefficient production functions, so that total output is equal to total input for each processing sector. In most cases, exports or imports are treated as residual amounts so that this equality constraint is satisfied. The methods of

input-output analysis require the exact sum of outputs to equal inputs for all 43 sectors.

Industry Interdependence - Purchases Per Dollar of Output

The technical coefficients table is based on a fixed coefficient production function for each of the processing or production sectors. The table has estimates of the amount of input from each sector required to produce one unit of output. Technical coefficients are ratios of input from each sector to total inputs from all sectors, derived from the flow table. For example in column two of Table 3, the coefficient of labor input for dairy farms, 0.17606, is the ratio of \$100.95 million in labor input expenditures from column two of Table 2 to the \$573.35 million total input expenditures by Ohio dairy farms.

The coefficients of Table 3 are the value of input required from each sector to produce \$1.00 of output in each of the other sectors. For example, to produce \$1.00 in output from the Ohio cattle feeding sector requires about \$0.07 of expenditures in the cattle feeding sector, another \$0.03 in the Ohio feed grains sector and \$0.20 of labor. In the context of the input-output model, these technical coefficients are called the "direct" requirements for the production of each \$1 of output. This direct purchase of inputs from other sectors is an increase in demand for the output of the other sectors. This increase in demand, in turn, generates the "indirect" effects over several "rounds" of economic activity. That is, the direct effect generates first-round indirect effects, which generate second-round indirect effects, and so on. The direct plus all indirect effects equal the total effects shown by the interdependence coefficients.

The Interdependence Coefficients Table

Each interdependence coefficient, provided in Table 4, represents the total value of input from each sector required to provide \$1.00 of output to final demand for the sector of concern. Each \$1.00 supplied to final demand requires more than \$1.00 of total output because of the intermediate product requirements of the processing sectors. For Ohio, to provide \$1.00 of farm inputs and machinery industries output to final demand requires total product of \$1.11986 from other firms in the same industry and about \$0.05 or less from any of the other sectors (first column of Table 4). In input-output terminology, Table 4 is a Type I table; only the processing sectors are used to generate the interdependence coefficients. This means that changes in labor earnings and regional consumption resulting from output changes do not "feed back" into the determination of total requirements for regional output. Only the direct effects of a change in final demand are incorporated.

In a Type II table, the effects generated by these indirect or secondary labor-consumption effects are called induced effects. To include the "feedback" or induced effects of changes in labor earnings and regional consumption on total requirements, the technical coefficients row for labor and the technical coefficients column for regional consumption are appended to Table 3. Exports and imports are still outside the model. The Type II interdependence coefficients table then also includes a labor row and a regional consumption column.

See Richardson (1972) for further discussion of Type II effects.

An important issue in the specification of these tables is the response of other sectors to changes in demand for the output of a given sector. It is relatively easy to estimate the actual transactions among the processing, the final demand, and the primary input sectors. If

final demand for a sector increases, however, it is not necessarily true that each of the processing sectors from which inputs are purchased (and regional labor in a Type II model) will expand to provide the increase in inputs demanded by the given sector. If they do not expand, the necessary inputs, such as labor, will be imported. The activity instead "leaks" out of the region. In regions where capital and labor are fully employed, much of these indirect effects and even the direct effect are likely to come through regional imports. The effects then actually impact other regions rather than the one under study.

The Impact Multipliers

Impact coefficients or multipliers are quantitative and summary measures of the total effects that a change in the final demand for a particular sector has on the output, total income, or employment of the Ohio economy.

The output multiplier of a particular sector measures the total change in output generated by a \$1.00 change in final demand for the product of a particular sector (Table 5). The multiplier is the sum of the interdependence coefficients and the total requirements for \$1.00 of final demand for that sector's column of the interdependence coefficients table. For example, the output multiplier for dairy farms, 1.3036, (Table 5) is the sum of the dairy farm products interdependence coefficients in that sector's column of Table 4.

The income and employment multipliers are similarly defined as the ratio of the total effect (direct plus indirect) to the direct effect. The direct effect is the income (employment) generated within the sector per unit of output. For example, the total effect of each \$1.00 of output in dairy farm products generates about 62.3 cents of income; each \$1 million of output generates 23.0 person-years of employment, Table 5.

The total effect is the column sum of the interdependence coefficients for a particular sector multiplied by the direct effect of the sector from which the inputs are purchased. It is the summation of total income (employment) generated within each sector resulting from a change in the final demand for a specified sector. For example, a \$1.00 change in final demand for feed grain products generates total income of \$1.0398, where the direct effect is \$0.6131 and the indirect is \$0.4267, Table 5. Similarly, the total employment effect of a \$1 million change in final demand is about 25.1 person-years, of which about 12.4 person-years are direct effects and the remaining 12.7 person-years of employment are in indirect effects.

In Table 5, the income multiplier of 3.6085 for dairy farms is the ratio of 0.1728 to 0.6235. It means that each \$1.00 of income from dairy farms resulting from a change in final demand generates about \$3.61 in total economy-wide Ohio income. The employment multiplier of 2.2275 means that each \$1 million change in Ohio dairy farm output resulting from a change in final demand generates approximately 2.2 person-years change in total employment in Ohio.

Conclusions

OHFOOD is a sophisticated input-output model designed specifically to capture the interdependencies and linkages among various industries composing the complex economy of Ohio. The model is constructed so as to

maintain meaningful detail on the food and agricultural sectors. The input-output model offers some descriptive information on the importance of food and related agriculture to the economy of Ohio.

The documentation reported in this manuscript is intended only to provide a brief and summary view of the importance of food and related agriculture to the state's economy. Substantially more detail is available from the numbers reported in the tables.

The analysis indicates that the Ohio food and related agricultural sectors combined contribute approximately 13 percent of the output, 11 percent of the value added, 16 percent of the total employment, and 11 percent of total income. Of the 5 basic sectors within the food production and distribution chain, processing is the largest in terms of output, but the food and forestry wholesaling and retailing sectors and the food service sector are the most significant in terms of employment. The food and related agricultural sectors account for over 935,406 jobs in Ohio.

The **OHFOOD** model can be used to assess changes in the structure of the Ohio economy. Keeping the model updated with the latest information available will be an on-going task of the Farm Income Enhancement Program and the Agribusiness Research Group within the Department of Agricultural Economics of The Ohio State University.

Table 1. Ohio Output, Value Added, Income, and Employment, 1992

	Total Output	Value Added	Income	Employment
	-----\$ Millions-----			Person Years
Food and Related Agricultural Sectors				
Farm Inputs/Machinery	6,020	2,420	2,317	26,478
Farming	4,903	2,400	2,336	132,188
Dairy Farms	573	101	99	5,916
Poultry/Eggs	331	93	92	3,844
Cattle Feeding	445	89	84	4,745
Swine	314	76	71	3,534
Sheep and Goats	42	15	14	746
Food Grains	113	51	48	1,276
Feed Grains	522	339	320	6,489
Nursery/Horticulture	1,403	1,074	1,073	91,569
Fruits/Vegetables	179	61	59	1,441
Oil Bearing Crops	654	349	331	6,910
Hay/Sugar/Nut Crops	192	102	94	2,163
Forestry/Fishing/Ag Services	135	49	49	3,555
Processing	25,528	8,350	8,072	129,894
Food Processing	16,908	4,930	4,770	62,364
Meats/Eggs Processing	2,303	237	232	8,575
Dairy Processing	3,832	904	891	10,094
Proc. Food & Kindred Products	6,577	2,568	2,529	32,170
Grain Milling/Flour	969	299	296	2,474
Fats/Oils	1,263	230	224	2,403
Beverage Processing	1,964	692	598	6,648
Wood/Paper/Furniture Manufacturing	8,620	3,420	3,302	67,530
Food & Forestry Wholesaling/Retailing	11,058	7,576	6,270	307,887
Food Service ^a	8,716	4,911	4,302	338,970
Subtotal	56,225	25,657	23,295	935,417
General Manufacturing & Service Sectors				
Mining	2,156	1,404	1,245	17,649
Construction	29,236	13,554	13,428	341,452
Apparel/Yarn/Leather	2,256	919	908	25,236
Motor Vehicle Equipment	35,178	9,928	9,459	131,641
Metal Industries	34,731	13,319	12,824	219,678
Chemical/Petroleum	35,073	12,872	11,667	150,547
Publishing	8,027	4,114	4,007	77,639
Stone/Clay/Class	5,212	2,749	2,673	45,658
Machinery/Equipment	22,396	10,380	10,156	180,567
Technology Industries	9,321	4,231	4,169	71,656
Misc. Services	23,048	16,074	15,784	628,693
Transportation/Communication	22,131	11,810	10,763	237,835
Electricity/Gas/Sanitation	10,197	5,630	4,947	35,864
Wholesale/Retail	30,986	21,229	17,570	678,931
Financial/Legal	27,831	13,480	12,455	336,431
Real Estate/Development	31,475	24,277	17,315	116,187
Recreation/Amusement	3,057	1,775	1,723	80,316
Health Services	24,823	18,483	18,357	516,018
Education Services	3,775	1,788	1,788	104,394
Government/Nonprofit	29,993	26,575	26,546	947,758
Others	271	271	271	42,633
Subtotal	391,173	214,861	198,054	4,986,783
Total	447,398	240,518	221,351	5,922,200

Note: Each sector's output, value added, income, and employment are provided through U.S. Census information. The wholesaling and retailing sector is treated as one sector for purposes of the input-output model definition, but this sector is disaggregated for purposes of Table 1. The disaggregation procedure used is to estimate the percentage of all wholesale/retail payroll and employment solely from food wholesale/retail in Ohio using data published by County Business Patterns, 1991. The percentage of payroll (26.3%) is used to estimate the proportion of agriculture and food output, value added, and income. The percentage of employment (31.2%) is used to adjust employment in a similar fashion.

a Excludes hotel/motel food service.

Table 2. Transactions Flows for Ohio, 1992

	Farm Inputs/ Machinery	Dairy Farms	Poultry/ Eggs	Cattle Feeding	Swine	Sheep and Goats	Food Grains	Feed Grains	Nursery/ Horticulture	Vegetables/ Fruits	Oil Bearing Crops
Food and Related Agricultural Sectors:											
Farm Inputs/Machinery	632.11060	1.27172	0.56228	2.37686	1.60634	0.30474	3.53921	9.82458	12.69251	1.92032	8.91933
Dairy Farms	0.00002	0.28590	0.31212	0.61633	0.41653	0.02328	0.05024	1.06833	0.04058	0.22551	0.55462
Poultry/Eggs	0.00001	0.15661	0.17097	0.05100	0.03447	0.00394	0.54841	1.89208	0.02223	0.18268	3.07189
Cattle Feeding	0.00002	0.31236	0.34101	29.10132	0.06963	0.00790	0.24648	0.54583	0.04433	0.24344	0.63486
Swine	0.00001	0.22028	0.24048	0.07265	47.89729	0.00557	0.15145	0.33669	0.03126	0.17154	0.40668
Sheep and Goats	0.00000	0.03293	0.03595	0.07932	0.05360	2.03374	0.06447	0.23874	0.03687	0.05395	0.23136
Food Grains	0.02863	0.23212	0.28781	0.21370	0.14443	0.01987	0.72040	0.04662	0.02472	0.12652	0.12862
Feed Grains	0.14215	30.63600	1.69183	14.89997	10.06979	1.05386	0.05875	1.74928	0.08268	0.40942	0.41825
Nursery/Horticulture	0.10626	0.20902	0.22819	0.06807	0.04600	0.00526	0.02228	7.21485	159.80560	5.32429	0.16318
Fruits/Vegetables	0.00002	0.35559	0.38820	0.13892	0.09389	0.00966	0.03791	0.09809	0.05047	0.48437	0.27760
Oil Bearing Crops	0.00007	1.33844	1.46121	0.48157	0.32546	0.03507	0.14268	0.36923	0.18996	1.03749	23.49068
Hay/Sugar/Nut Crops	0.04361	19.15725	0.94395	9.33308	6.30755	0.65983	0.02452	0.13031	0.03402	0.17286	0.17591
Forestry/Fishing/Ag Services	0.00059	10.63241	11.60769	3.46234	2.33994	0.26746	1.13344	2.93314	1.50932	8.24166	8.30052
Meat/Egg Processing	0.09501	0.00497	0.21725	0.51809	0.35014	0.03891	0.00000	0.00000	0.00000	0.00000	0.00000
Dairy Processing	0.25280	0.03041	0.23831	0.04874	0.03294	0.02414	0.00015	0.00050	0.00014	0.00012	0.00074
Proc. Food & Kindred Products	0.14325	4.86847	7.11491	3.30363	2.23268	0.43771	0.00280	0.01000	0.00337	0.00399	0.01616
Grain Milling/Flour	0.05228	0.01912	0.02765	0.01221	0.00825	0.00194	0.00000	0.00000	0.00000	0.00000	0.00000
Fats/Oils	0.49154	2.82044	3.71955	1.03402	0.69882	0.56554	0.00108	0.00417	0.00117	0.00180	0.00720
Beverage Processing	0.02147	0.00706	0.00580	0.00142	0.00096	0.00093	0.00003	0.00011	0.00006	0.00003	0.00016
Wood/Paper/Furniture Mfg	15.69999	0.24264	0.07921	0.05584	0.03774	0.00513	0.01450	0.03793	0.33500	4.44345	0.05798
Food Service ^a	1.80714	0.01057	0.00415	0.00973	0.00658	0.00078	0.00220	0.00660	0.20162	0.00322	0.00999
General Manufacturing and Service Sectors:											
Mining	8.19789	0.00860	0.00281	0.00349	0.00236	0.00051	0.03668	0.09262	0.02760	0.01867	0.05032
Construction	76.48051	5.79753	1.02846	5.35302	3.61771	0.30310	1.93682	5.68988	8.35600	1.42050	8.77453
Apparel/Yarn/Leather	0.70608	0.02355	0.00601	0.01221	0.00825	0.12187	0.00492	0.01912	0.05126	0.44383	0.02500
Motor Vehicle Equipment	11.88511	0.16944	0.06648	0.32264	0.21805	0.04647	0.14843	0.53029	0.41034	0.15364	0.77436
Metal Industries	64.64622	0.46177	0.12931	0.20941	0.14152	0.02790	0.08397	0.43722	0.12289	0.10716	0.36609
Chemical/Petroleum	151.91200	3.49468	1.95426	2.38210	1.60989	0.23268	3.01775	5.30139	6.35413	2.12121	5.47738
Publishing	38.01307	0.03879	0.04109	0.05293	0.03577	0.00474	0.01524	0.04123	1.30339	0.02283	0.06086
Stone/Clay/Glass	4.42735	0.11884	0.00559	0.00633	0.00428	0.00042	0.01328	0.04868	0.08889	0.02510	0.07758
Machinery/Equipment	124.81200	0.74849	0.32816	0.78327	0.52935	0.07306	0.23892	0.74427	0.40184	0.28150	1.12683
Technology Industries	6.77850	0.21483	0.07936	0.39664	0.26806	0.05332	0.20449	0.67922	0.19862	0.16390	0.99071
Misc. Services	110.12370	1.10276	0.34073	1.58449	1.07084	0.18646	0.76289	2.54660	7.06049	0.78647	3.88887
Transportation/Communication	148.94940	21.80171	6.25329	13.45809	9.09534	1.10978	2.81700	7.09550	12.37549	2.61933	7.34276
Electricity/Gas/Sanitation	222.18990	8.26597	3.42461	2.64112	1.78494	0.45905	1.02726	2.67582	3.15905	1.28153	4.99110
Wholesale/Retail	22.12754	2.88345	0.62427	1.89181	1.27853	0.14646	0.65364	1.79970	3.28120	0.60915	2.17552
Financial/Legal	41.12532	2.99478	0.67375	5.49567	3.71412	0.31908	2.57080	7.00592	7.45178	2.05478	22.76842
Real Estate/Development	20.17703	9.18572	1.01554	15.29542	10.33705	0.74258	8.74219	19.38021	6.04170	4.32706	41.09116
Recreation/Amusement	0.98407	0.00001	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000	0.04544	0.00000	0.00002
Health Services	0.01881	3.31507	3.26958	6.16918	4.16930	0.40035	0.00000	0.00000	0.00175	0.00000	0.00000
Education Services	2.20549	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Government/Nonprofit	38.91315	1.49026	0.52825	1.41838	0.95858	0.11676	0.34867	0.84920	1.39765	0.23407	1.70086
Others	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Primary Input:											
Labor	2,419.57	100.95	93.10	89.24	75.66	14.88	51.30	338.68	1,074.11	61.50	349.18
Imports:											
Competitive	1,803.31	332.03	185.42	229.04	123.99	17.42	31.95	100.73	95.52	75.95	153.70
Non-Competitive	46.42	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00
Total Inputs:	6,019.81	573.35	330.85	444.71	313.62	42.38	113.27	521.76	1,403.29	178.96	653.82

^a Excludes hotel/motel food service.

Table 2. Transactions Flows for Ohio, 1992 (continued)

	Hay/Sugar Nut Crops	Forestry/ Fishing	Meat/Egg Processing	Dairy Processing	Proc.Food/ Kindred Products	Grain Milling/ Flour	Fats/ Oils	Beverage Processing	Wood Proc./ Paper/ Furn. Mfg.	Food Service
Food and Related Agricultural Sectors:										
Farm Inputs/Machinery	4.71034	4.35719	1.04631	3.91728	36.77690	1.45537	1.49456	5.11892	99.81031	3.60410
Dairy Farms	0.44110	0.07753	0.00000	504.47960	0.01525	0.00000	0.00000	0.00000	0.00037	0.97729
Poultry/Eggs	0.77529	8.00505	100.81560	0.00000	40.91808	0.00182	0.00002	0.00000	0.00020	16.18595
Cattle Feeding	0.23271	0.14293	397.48840	0.84340	0.10355	0.00000	0.03723	0.00000	0.00041	0.21830
Swine	0.14481	0.09469	238.65110	0.50627	0.07303	0.00000	0.02626	0.00000	0.00029	0.15395
Sheep and Goats	0.12344	0.02812	10.42085	0.02173	1.06049	0.00000	0.00149	0.00000	0.01242	0.00874
Food Grains	0.02626	0.04429	0.00993	0.00644	0.51999	24.31612	0.01136	0.01165	0.06493	0.01650
Feed Grains	0.08625	0.14337	0.04931	0.03200	10.40385	3.01976	0.05640	0.50141	0.32206	0.08193
Nursery/Horticulture	2.91961	6.49762	0.01572	0.01478	19.32818	0.01011	0.00656	0.06282	0.41252	0.16064
Fruits/Vegetables	0.05559	0.09642	0.00000	0.00000	22.13741	0.15577	0.00000	2.21448	0.00046	6.85479
Oil Bearing Crops	0.20924	0.36295	0.00000	0.00000	27.60021	0.57204	147.76590	0.00000	0.00174	0.00000
Hay/Sugar/Nut Crops	0.87155	0.06052	0.01512	0.00996	18.79976	2.01231	0.26122	0.94277	0.09887	0.02513
Forestry/Fishing/Ag Services	1.66220	2.89099	0.01277	0.00033	0.04780	0.00000	0.00898	0.00000	0.28893	0.12912
Meat/Egg Processing	0.00000	0.10793	198.91000	0.21126	69.67161	2.87940	16.50785	0.01334	0.05769	124.65560
Dairy Processing	0.00027	0.00112	0.71042	547.00080	71.61160	0.24530	1.16483	0.55311	0.04534	213.13100
Processed Food & Kindred Produ	0.00479	0.22982	9.55066	36.33762	118.70850	8.56514	2.27426	22.19052	0.04581	307.23330
Grain Milling/Flour	0.00000	0.00062	0.68273	2.10051	14.67951	3.84478	0.25464	0.98509	0.11937	8.02542
Fats/Oils	0.00199	0.00426	0.30217	16.00360	165.54340	8.88456	254.50760	2.05402	0.57615	5.40795
Beverage Processing	0.00006	0.00011	0.02506	0.09561	0.57748	0.00816	0.00065	2.66723	0.01254	23.85605
Wood/Paper/Furniture Manufactu	0.02299	0.85099	16.76654	94.56054	141.33750	40.84798	21.40925	32.45697	291.13740	25.18937
Food Service ^a	0.00330	0.02217	0.13365	0.35941	1.07563	0.15900	0.05730	0.43423	2.90964	2.74406
General Manufacturing and Service Sectors:										
Mining	0.04276	0.00204	0.16048	0.46703	0.83875	0.07366	0.28708	0.20028	4.35815	0.24605
Construction	2.68751	2.62313	7.43153	17.37427	31.11209	8.11929	3.74638	28.13351	90.57378	107.91480
Apparel/Yarn/Leather	0.01661	0.38151	0.01539	0.03083	3.19211	0.84717	0.01725	0.02456	3.41609	0.88605
Motor Vehicle Equipment	0.27947	0.09719	0.01961	0.10256	0.36849	0.04001	0.01118	0.11041	2.97523	0.31340
Metal Industries	0.20610	0.15212	1.94349	14.77324	49.97707	2.06783	2.37330	86.27809	50.54935	1.40013
Chemical/Petroleum	2.63790	1.14478	2.57230	15.53371	47.87004	2.80300	3.49278	6.60313	257.87920	7.91586
Publishing	0.02081	0.10046	20.49532	44.35717	97.47130	21.61942	9.98897	44.08365	41.55759	56.47970
Stone/Clay/Glass	0.02331	0.05434	0.02130	7.20361	45.90521	0.22113	2.45371	80.00336	17.85304	8.76080
Machinery/Equipment	0.38924	0.22118	0.58697	3.46203	7.85072	1.28010	1.19328	4.33691	39.88176	5.96205
Technology Industries	0.36166	0.08535	0.15173	0.24298	1.17300	0.09467	0.10248	0.34435	4.04462	0.53860
Misc. Services	1.33045	2.08290	10.98130	28.10901	80.34523	17.33541	6.62766	34.17596	108.51190	146.57950
Transportation/Communication	3.36878	2.04374	40.31071	41.26023	201.80150	54.94213	48.99231	52.49822	313.96090	86.84669
Electricity/Gas/Sanitation	1.27468	0.27481	18.64298	42.50921	67.53092	12.61039	16.97116	17.08074	240.37160	122.59030
Wholesale/Retail Trade	0.91003	0.49115	10.70121	15.49968	29.26516	6.60721	4.62670	7.88640	43.44177	23.06267
Financial/Legal	3.46721	2.51883	3.22989	10.96819	37.83603	4.37150	3.23611	14.59012	61.19765	102.04270
Real Estate/Development	9.51107	0.08592	3.26767	8.59916	16.07643	2.73715	1.16775	3.52958	28.37661	193.46100
Recreation/Amusement	0.00001	0.21619	0.02992	0.07314	0.28311	0.06259	0.00281	0.13380	0.79085	31.06969
Health Services	0.00000	0.00025	0.00088	0.00277	0.00916	0.00135	0.00055	0.00349	0.02247	0.04993
Education Services	0.00000	0.57118	0.00000	0.03049	0.56269	0.85580	0.00000	0.12918	10.46303	3.42869
Government/Nonprofit	0.41723	0.33256	2.89142	9.86680	19.79968	2.56369	2.21570	6.87704	50.98158	33.90815
Others	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Primary Input:										
Labor	102.04	49.38	236.66	903.61	2,567.83	298.87	230.12	692.42	3,420.48	4,910.65
Imports:										
Competitive	50.62	46.87	958.77	1,446.92	2,323.34	430.81	474.45	809.83	3,404.51	2,128.04
Non-Competitive	0.00	0.24	2.82	13.98	180.50	0.96	2.10	3.45	10.86	3.43
Total Inputs:	192.38	134.98	2,303.13	3,831.92	6,577.25	969.13	1,262.89	1,963.54	8,620.30	8,715.77

^a Excludes hotel/motel food service.

Table 2. Transactions Flows for Ohio, 1992 (continued)

	Mining	Construction	Apparel/ Yarn/ Leather	Motor Vehicle Equipment	Metal Industries	Chemical/ Petroleum	Publishing	Stone/Clay/ Glass	Machinery/ Equipment	Technology Industries	Misc. Services
Food and Related Agricultural Sectors:											
Farm Inputs/Machinery	7.63392	10.10925	14.52938	18.88416	244.96960	1,867.78300	20.90095	95.74492	61.88955	20.66218	40.86897
Dairy Farms	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00013
Poultry/Eggs	0.00000	0.00000	0.00070	0.00000	0.00000	2.19017	0.00000	0.00000	0.00000	0.00000	0.02345
Cattle Feeding	0.00000	0.00000	0.07991	0.00008	0.00014	0.00493	0.00000	0.00000	0.00000	0.01146	0.00030
Swine	0.00000	0.00000	0.04843	0.00006	0.00010	0.00348	0.00000	0.00000	0.00000	0.00808	0.00021
Sheep and Goats	0.00000	0.00000	0.01173	0.00000	0.00001	0.16391	0.00000	0.00000	0.00000	0.00046	0.10079
Food Grains	0.00463	0.18100	0.00761	0.17062	0.21044	0.22228	0.03196	0.07136	0.06497	0.01714	0.01715
Feed Grains	0.02299	0.89883	0.03780	0.84729	1.04501	1.10382	0.15873	0.35436	0.32261	0.08514	0.08515
Nursery/Horticulture	0.05185	165.14310	1.84309	0.70603	0.40640	1.60923	0.08301	0.11129	0.34095	0.16005	2.59828
Fruits/Vegetables	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00624
Oil Bearing Crops	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hay/Sugar/Nut Crops	0.00705	0.27571	0.19183	0.25990	0.32054	3.00614	0.04869	0.10870	0.09896	0.02611	0.02612
Forestry/Fishing/Ag Services	0.00000	0.00033	0.01521	0.00011	0.00158	0.04385	0.00000	0.00055	0.00025	0.00037	0.00042
Meat/Egg Processing	0.00066	0.00000	4.96694	0.04185	0.07421	12.05425	0.06143	0.00000	0.00000	4.33737	0.45675
Dairy Processing	0.00560	0.00738	0.01747	0.04991	0.31407	1.59677	0.05507	0.06670	0.11742	0.02890	0.08332
Proc. Food & Kindred Products	0.00486	0.01714	0.02773	0.02831	0.16415	2.60173	0.01688	0.06637	0.05015	0.01403	0.80076
Grain Milling/Flour	0.00039	0.00028	0.00129	0.00121	0.02940	0.30861	0.00198	0.02450	0.00518	0.00159	0.02463
Fats/Oils	0.00077	0.00146	0.02700	0.00490	0.06282	96.81134	0.00511	0.08077	0.01232	0.06261	0.03886
Beverage Processing	0.00191	0.00170	0.00642	0.01507	0.07430	0.10122	0.01839	0.01540	0.04400	0.01154	0.05096
Wood/Paper/Furniture Mfg	0.37230	523.89290	23.60115	165.61220	171.60120	489.55550	27.14023	76.28510	187.54150	65.00690	19.03263
Food Service ^a	0.22417	9.09649	1.15813	7.25707	11.88013	7.08782	5.44411	1.61384	9.47977	3.81691	15.26869
General Manufacturing and Service Sectors:											
Mining	8.70432	26.15533	0.23775	3.37625	96.49079	26.22776	0.45329	18.37021	2.57438	0.86770	1.11241
Construction	107.87410	38.94198	18.50626	351.96350	845.08910	261.36690	49.22717	74.22305	324.78770	95.74512	173.71450
Apparel/Yarn/Leather	0.08512	9.16816	49.22571	381.10050	26.76035	9.27477	0.89991	1.42162	3.15429	5.42429	9.71945
Motor Vehicle Equipment	1.16486	16.96090	0.25904	3,551.08600	28.43066	5.69647	1.57038	1.05629	36.20387	6.54089	11.34871
Metal Industries	4.79333	347.13650	5.46853	950.99070	1,798.60700	152.46690	2.24885	21.09081	566.46790	118.09980	23.70218
Chemical/Petroleum	25.31341	551.34070	56.36407	227.69450	413.42000	2,904.31800	164.27090	98.35624	185.65340	89.16292	116.62440
Publishing	2.73485	6.92133	25.37928	302.17810	269.80150	186.36580	235.18440	36.33979	186.05790	72.40014	137.62680
Stone/Clay/Class	0.32583	74.12872	0.67994	173.33470	54.01159	125.65990	0.91828	151.24360	139.55970	54.64262	16.24066
Machinery/Equipment	17.05558	397.05720	6.52300	802.88750	390.55710	94.22713	19.91116	9.71080	924.77850	62.85267	60.86673
Technology Industries	0.53694	200.04430	1.14267	512.07710	29.47187	19.97515	20.60067	2.82597	158.67970	878.87380	154.06170
Misc. Services	23.31721	1,699.98600	34.34003	426.82200	539.48070	358.88740	227.04300	62.46648	385.58640	136.76700	1,458.51200
Transportation/Communication	36.45463	856.14810	38.46518	1,068.43100	1,063.75600	993.77800	175.56690	297.88650	380.04410	123.78530	247.98520
Electricity/Gas/Sanitation	62.02381	76.76068	24.48306	297.26880	1,170.97500	761.94230	67.92813	206.91880	309.58920	88.38055	113.07780
Wholesale/Retail	3.25997	985.15590	8.12550	199.69700	183.63210	130.25020	25.94791	15.53027	120.96540	37.70270	40.07240
Financial/Legal	9.73551	371.94200	19.66527	224.92980	353.05040	257.67420	117.57540	35.68187	205.41880	93.77561	577.42910
Real Estate/Development	70.75655	82.94315	9.61480	57.02771	101.68990	112.54440	67.22591	18.02379	102.62780	51.10429	352.42210
Recreation/Amusement	0.20978	7.37221	0.20443	10.01957	3.49235	3.55740	3.07522	0.34321	3.03873	3.91634	16.28253
Health Services	0.00280	0.14020	0.00806	0.05770	0.07618	0.09586	0.04453	0.01381	0.07361	0.03227	0.34011
Education Services	3.49975	0.00000	7.69499	145.34270	36.81920	87.42656	10.57746	1.78534	23.64908	19.61105	35.73345
Government/Nonprofit	7.24126	31.77265	8.13648	94.21741	185.82410	93.86871	72.67924	22.70270	74.01379	25.00152	175.91740
Others	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Primary Input:											
Labor	1,403.84	13,553.89	918.52	9,928.40	13,319.23	12,871.90	4,114.40	2,748.80	10,380.32	4,231.25	16,073.58
Imports:											
Competitive	348.20	9,136.30	956.09	14,818.17	13,176.56	12,707.95	2,562.43	1,172.27	7,509.52	2,917.04	3,069.52
Non-Competitive	6.42	0.65	18.14	291.62	83.26	366.26	19.68	35.31	92.05	84.88	62.84
Total Inputs:	2,156.45	29,235.85	2,256.08	35,178.27	34,730.50	35,072.96	8,027.08	5,212.20	22,396.33	9,321.19	23,048.20

^a Excludes hotel/motel food service.

Table 2. Transactions Flows for Ohio, 1992 (continued)

	Transportation/ Communication	Electricity/ Gas/Sanitation	Wholesale/ Retail	Financial/ Legal	Real Estate/ Development	Recreation/ Amusement	Health Services	Education Services	Government/ Nonprofit	Others
Food and Related Agricultural Sectors:										
Farm Inputs/Machinery	6.69145	18.47928	5.39199	0.31285	15.86854	0.14097	181.68880	5.79494	18.67626	0.00000
Dairy Farms	0.00083	0.00000	0.04599	0.00000	0.00000	0.00276	0.09828	0.09213	0.00602	0.00000
Poultry/Eggs	0.04824	0.00000	0.02519	0.00000	0.00000	0.07174	4.79901	0.05218	1.14178	0.00000
Cattle Feeding	0.00118	0.00004	0.05025	0.00000	0.00000	0.00703	0.06439	0.00840	0.01136	0.00000
Swine	0.00083	0.00003	0.03544	0.00000	0.00000	0.00496	0.04541	0.00593	0.00801	0.00000
Sheep and Goats	0.00005	0.00000	0.00530	0.00000	0.00000	0.08940	0.00811	0.05153	0.13670	0.00000
Food Grains	0.47219	0.00855	0.06278	0.10375	0.00972	0.00284	0.01457	0.00418	0.03652	0.00000
Feed Grains	2.34482	0.04245	0.26633	0.51522	0.04826	0.01221	0.07234	0.02072	0.18118	0.00000
Nursery/Horticulture	0.52898	0.73699	4.15517	1.07644	122.70160	10.63571	4.44190	11.22880	3.96072	0.00000
Fruits/Vegetables	0.01595	0.00000	0.05721	0.00000	0.00000	0.07145	1.39016	0.11303	0.24461	0.00000
Oil Bearing Crops	0.00000	0.00000	0.21532	0.00000	0.00000	0.00885	0.00000	0.00013	0.00080	0.00000
Hay/Sugar/Nut Crops	0.71925	0.01302	0.09151	0.15804	0.16136	0.00415	0.02219	0.06228	0.05561	0.00000
Forestry/Fishing/Ag Services	0.00024	0.00000	1.71066	0.00004	0.00006	0.07076	0.00500	0.00031	0.00794	0.00000
Meat/Egg Processing	0.53212	0.01940	0.00071	0.00001	0.00000	2.26635	29.40089	4.79631	5.35870	0.00000
Dairy Processing	0.26574	0.04289	0.01084	0.00099	0.00204	1.48374	17.05982	14.35747	2.31333	0.00000
Proc. Food & Kindred Products	1.63949	0.02546	0.84195	0.01312	0.00540	6.44298	54.71451	8.52257	11.34633	0.00000
Grain Milling/Flour	0.03753	0.00201	0.00097	0.00002	0.00001	0.21170	3.19916	1.99019	0.68094	0.00000
Fats/Oils	0.05665	0.00434	0.00180	0.00079	0.00121	0.27438	3.29186	0.09752	0.66078	0.00000
Beverage Processing	0.37450	0.00944	1.77870	0.00328	0.01904	0.49939	1.11733	0.06809	0.24133	0.00000
Wood/Paper/Furniture Mfg	9.56831	4.09628	311.61970	7.05433	2.00163	1.43988	8.68915	10.06632	2.88761	0.00000
Food Service ^a	17.00210	1.19097	65.08829	50.54669	17.30012	1.83073	9.92144	2.66548	3.70297	0.00000
General Manufacturing and Service Sectors:										
Mining	2.58608	66.51483	3.95766	0.29576	0.11255	0.16253	2.86261	0.45044	3.57334	0.00000
Construction	580.04300	928.53390	764.94090	300.93710	1,731.56600	56.91400	209.67900	361.84720	951.30000	0.00000
Apparel/Yarn/Leather	3.20674	0.95149	9.65380	7.96420	0.42081	1.49161	17.69301	0.83855	4.25583	0.00000
Motor Vehicle Equipment	390.35040	27.17858	12.90044	5.12371	1.26344	0.27946	2.75632	1.69855	8.29372	0.00000
Metal Industries	133.87010	9.08235	21.70626	2.00478	1.53523	1.03777	8.42962	6.46283	2.56949	0.00000
Chemical/Petroleum	555.24520	154.96460	207.32490	37.95251	16.79514	5.58082	289.09020	25.36804	98.78828	0.00000
Publishing	93.69343	4.33961	580.47770	230.88000	125.65000	24.14903	47.75974	55.14460	110.41530	0.00000
Stone/Clay/Glass	40.68794	1.48686	8.25204	3.67326	0.42823	0.14460	35.19817	11.16029	1.19716	0.00000
Machinery/Equipment	63.36247	11.96635	23.76261	1.40538	1.21977	0.50699	2.80270	1.09132	8.61074	0.00000
Technology Industries	97.38448	23.63142	22.68760	78.87775	4.34138	2.45556	374.99750	23.30728	8.79705	0.00000
Misc. Services	504.53490	115.72230	1,969.53900	1,911.74100	404.23330	114.62560	588.24730	182.36710	204.04880	0.00000
Transportation/Communication	2,404.63900	175.97950	816.78390	628.39740	108.83440	23.40513	117.58340	48.70673	199.86290	0.00000
Electricity/Gas/Sanitation	195.33640	528.21470	600.92970	114.65470	15.59612	27.20348	161.51940	42.88837	198.28210	0.00000
Wholesale/Retail	429.45380	12.55226	117.50800	21.98039	19.66835	2.15059	33.48973	6.83360	8.51141	0.00000
Financial/Legal	297.55150	152.82970	1,164.54000	3,695.43300	1,026.36200	41.55248	162.66060	68.59859	97.54964	0.00000
Real Estate/Development	417.37240	22.26247	1,109.21900	798.82850	1,479.86000	89.16870	698.97450	237.48680	193.05060	0.00000
Recreation/Amusement	207.69170	0.90710	115.20400	43.06411	9.92673	299.41290	10.35967	32.29495	26.46897	0.00000
Health Services	0.14740	0.01492	0.34402	0.63899	0.06632	0.02498	269.10330	0.04691	0.08188	0.00000
Education Services	14.91506	38.78875	3.68553	11.26124	0.73326	0.00000	5.86790	1.79986	5.82908	0.00000
Government/Nonprofit	79.19536	56.56269	287.63460	408.86160	84.49997	26.06700	130.91490	57.45047	87.81866	0.00000
Others	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Primary Input:										
Labor	11,809.63	5,629.93	28,804.85	13,479.74	24,277.19	1,774.59	18,483.30	1,788.41	26,575.44	270.98
Imports:										
Competitive	3,352.17	2,176.42	4,739.18	5,804.30	1,994.37	532.76	2,802.49	755.10	1,046.39	0.00
Non-Competitive	366.01	1.09	226.87	143.97	3.34	5.21	4.23	2.77	92.34	0.00
Total Inputs:	22,131.37	10,197.25	42,043.59	27,830.70	31,474.66	3,056.91	24,822.88	3,775.18	29,992.65	270.98

^a Excludes hotel/motel food service

Table 2. Transactions Flows for Ohio, 1992 (continued)

	Consumption	Investment	Government	Domestic Exports	Foreign Exports	Total Outputs
Food and Related Agricultural Sectors:						
Farm Inputs/Machinery	82.88	697.33	83.00	738.30	923.86	6,019.81
Dairy Farms	22.82	0.03	2.36	36.86	1.44	573.35
Poultry/Eggs	11.35	0.22	4.37	128.80	4.92	330.85
Cattle Feeding	2.23	0.00	0.09	8.76	2.78	444.71
Swine	1.57	0.00	0.06	21.82	0.81	313.62
Sheep and Goats	15.61	0.07	0.09	7.13	4.37	42.38
Food Grains	0.52	0.04	0.04	24.73	59.23	113.27
Feed Grains	3.96	0.22	0.80	247.98	184.44	521.76
Nursery/Horticulture	211.20	5.12	71.27	551.79	28.77	1,403.29
Fruits/Vegetables	109.26	0.25	2.47	9.26	22.37	178.96
Oil Bearing Crops	2.71	0.00	0.01	234.51	210.99	653.82
Hay/Sugar/Nut Crops	1.39	0.07	0.28	108.49	16.41	192.38
Forestry/Fishing/Ag Services	6.59	0.00	0.00	66.23	4.83	134.98
Meat/Egg Processing	855.90	0.27	40.17	763.85	164.32	2,303.13
Dairy Processing	791.27	4.87	70.36	1,940.49	151.96	3,831.92
Proc. Food & Kindred Products	1,697.02	2.78	72.03	4,022.87	171.93	6,577.25
Grain Milling/Flour	69.68	0.27	2.90	833.31	25.62	969.13
Fats/Oils	70.35	0.55	4.00	527.94	95.92	1,262.89
Beverage Processing	189.38	0.18	1.00	1,720.50	20.75	1,963.54
Wood/Paper/Furniture Mfg	415.62	175.77	38.57	4,752.68	445.00	8,620.30
Food Service ^a	7,091.71	0.01	106.96	1,243.65	21.90	8,715.77
General Manufacturing and Service Sectors:						
Mining	38.32	2.66	4.66	1,623.58	207.03	2,156.45
Construction	0.00	14,378.98	5,282.31	928.89	0.00	29,235.85
Apparel/Yarn/Leather	751.25	7.89	21.84	727.72	194.42	2,256.08
Motor Vehicle Equipment	1,499.70	1,347.39	1,168.40	20,792.91	6,240.68	35,178.27
Metal Industries	215.47	438.38	92.11	26,669.99	2,860.33	34,730.50
Chemical/Petroleum	4,551.69	57.13	636.95	20,333.72	2,737.53	35,072.96
Publishing	316.21	5.67	103.30	4,330.34	162.25	8,027.08
Stone/Clay/Glass	92.46	14.73	17.30	3,603.65	423.76	5,212.20
Machinery/Equipment	195.12	3,437.83	114.60	11,487.33	4,065.08	22,396.33
Technology Industries	560.81	2,530.62	318.43	1,455.42	1,823.98	9,321.19
Misc. Services	3,451.04	291.89	2,690.23	4,426.15	275.09	23,048.20
Transportation/Communication	6,744.85	278.30	434.91	2,471.21	1,316.67	22,131.37
Electricity/Gas/Sanitation	3,310.32	0.30	640.73	372.16	18.00	10,197.25
Wholesale/Retail Trade	19,491.49	662.51	78.45	17,533.59	1,695.09	42,043.59
Financial/Legal	9,936.00	0.13	531.70	7,101.87	947.40	27,830.70
Real Estate/Development	17,326.69	494.09	273.96	6,370.55	534.02	31,474.66
Recreation/Amusement	1,980.09	0.00	8.56	234.61	3.12	3,056.91
Health Services	22,067.80	0.00	60.81	2,404.18	1.31	24,822.88
Education Services	2,838.70	0.00	29.08	432.39	1.74	3,775.18
Government/Nonprofit	5,082.59	17.47	21,484.99	1,166.60	52.81	29,992.65
Others	270.98	0.00	0.00	0.00	0.00	270.98

^a Excludes hotel/motel food service

Table 3. Technical Coefficients for Ohio, 1992

	Farm Inputs/ Machinery	Dairy Farms	Poultry Eggs	Cattle Feeding	Swine	Sheep and Goats	Food Grains	Feed Grains	Nursery/ Horticulture	Vegetables/ Fruits	Oil Bearing Crops
Food and Agricultural Sectors:											
Farm Inputs/Machinery	0.10501	0.00222	0.00170	0.00534	0.00512	0.00719	0.03125	0.01883	0.00904	0.01073	0.01364
Dairy Farms	0.00000	0.00050	0.00094	0.00139	0.00133	0.00055	0.00044	0.00205	0.00003	0.00126	0.00085
Poultry/Eggs	0.00000	0.00027	0.00052	0.00011	0.00011	0.00009	0.00484	0.00363	0.00002	0.00102	0.00470
Cattle Feeding	0.00000	0.00054	0.00103	0.06544	0.00022	0.00019	0.00218	0.00105	0.00003	0.00136	0.00097
Swine	0.00000	0.00038	0.00073	0.00016	0.15272	0.00013	0.00134	0.00065	0.00002	0.00096	0.00062
Sheep and Goats	0.00000	0.00006	0.00011	0.00018	0.00017	0.04799	0.00057	0.00046	0.00003	0.00030	0.00035
Food Grains	0.00000	0.00040	0.00087	0.00048	0.00046	0.00047	0.00636	0.00009	0.00002	0.00071	0.00020
Feed Grains	0.00002	0.05343	0.00511	0.03350	0.03211	0.02487	0.00052	0.00335	0.00006	0.00229	0.00064
Nursery/Horticulture	0.00002	0.00036	0.00069	0.00015	0.00015	0.00012	0.00020	0.01383	0.11388	0.02975	0.00025
Fruits/Vegetables	0.00000	0.00062	0.00117	0.00031	0.00030	0.00023	0.00033	0.00019	0.00004	0.00271	0.00042
Oil Bearing Crops	0.00000	0.00233	0.00442	0.00108	0.00104	0.00083	0.00126	0.00071	0.00014	0.00580	0.03593
Hay/Sugar/Nut Crops	0.00001	0.03341	0.00285	0.02099	0.02011	0.01557	0.00022	0.00025	0.00002	0.00097	0.00027
Forestry/Fishing/Ag Services	0.00000	0.01854	0.03508	0.00779	0.00746	0.00631	0.01001	0.00562	0.00108	0.04605	0.01270
Meat/Egg Processing	0.00002	0.00001	0.00066	0.00116	0.00112	0.00092	0.00000	0.00000	0.00000	0.00000	0.00000
Dairy Processing	0.00004	0.00005	0.00072	0.00011	0.00011	0.00057	0.00000	0.00000	0.00000	0.00000	0.00000
Proc. Food & Kindred Products	0.00002	0.00849	0.02151	0.00743	0.00712	0.01033	0.00002	0.00002	0.00000	0.00002	0.00002
Grain Milling/Flour	0.00001	0.00003	0.00008	0.00003	0.00003	0.00005	0.00000	0.00000	0.00000	0.00000	0.00000
Fats/Oils	0.00008	0.00492	0.01124	0.00233	0.00223	0.01335	0.00001	0.00001	0.00000	0.00001	0.00001
Beverage Processing	0.00000	0.00001	0.00002	0.00000	0.00000	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000
Wood/Paper/Furniture Manufacturing	0.00261	0.00042	0.00024	0.00013	0.00012	0.00012	0.00013	0.00007	0.00024	0.02483	0.00009
Food Service ^a	0.00030	0.00002	0.00001	0.00002	0.00002	0.00002	0.00002	0.00001	0.00014	0.00002	0.00002
General Manufacturing and Service Sectors:											
Mining	0.00136	0.00002	0.00001	0.00001	0.00001	0.00001	0.00032	0.00018	0.00002	0.00010	0.00008
Construction	0.01270	0.01011	0.00311	0.01204	0.01154	0.00715	0.01710	0.01091	0.00595	0.00794	0.01342
Apparel/Yarn/Leather	0.00012	0.00004	0.00002	0.00003	0.00003	0.00288	0.00004	0.00004	0.00004	0.00248	0.00004
Motor Vehicle Equipment	0.00197	0.00030	0.00020	0.00073	0.00070	0.00110	0.00131	0.00102	0.00029	0.00086	0.00118
Metal Industries	0.01074	0.00081	0.00039	0.00047	0.00045	0.00066	0.00074	0.00084	0.00009	0.00060	0.00056
Chemical/Petroleum	0.02524	0.00610	0.00591	0.00536	0.00513	0.00549	0.02664	0.01016	0.00453	0.01185	0.00838
Publishing	0.00631	0.00007	0.00012	0.00012	0.00011	0.00011	0.00013	0.00008	0.00093	0.00013	0.00009
Stone/Clay/Glass	0.00074	0.00021	0.00002	0.00001	0.00001	0.00001	0.00012	0.00009	0.00006	0.00014	0.00012
Machinery/Equipment	0.02073	0.00131	0.00099	0.00176	0.00169	0.00172	0.00211	0.00143	0.00029	0.00157	0.00172
Technology Industries	0.00113	0.00037	0.00024	0.00089	0.00085	0.00126	0.00181	0.00130	0.00014	0.00092	0.00152
Misc. Services	0.01829	0.00192	0.00103	0.00356	0.00341	0.00440	0.00674	0.00488	0.00503	0.00439	0.00595
Transportation/Communication	0.02474	0.03803	0.01890	0.03026	0.02900	0.02619	0.02487	0.01360	0.00882	0.01464	0.01123
Electricity/Gas/Sanitation	0.03691	0.01442	0.01035	0.00594	0.00569	0.01083	0.00907	0.00513	0.00225	0.00716	0.00763
Wholesale/Retail Trade	0.00368	0.00503	0.00189	0.00425	0.00408	0.00346	0.00577	0.00345	0.00234	0.00340	0.00333
Financial/Legal	0.00683	0.00522	0.00204	0.01236	0.01184	0.00753	0.02270	0.01343	0.00531	0.01148	0.03482
Real Estate/Development	0.00335	0.01602	0.00307	0.03439	0.03296	0.01752	0.07718	0.03714	0.00431	0.02418	0.06285
Recreation/Amusement	0.00016	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00003	0.00000	0.00000
Health Services	0.00000	0.00578	0.00988	0.01387	0.01329	0.00945	0.00000	0.00000	0.00000	0.00000	0.00000
Education Services	0.00037	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Government/Nonprofit	0.00646	0.00260	0.00160	0.00319	0.00306	0.00276	0.00308	0.00163	0.00100	0.00131	0.00260
Others	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Primary Input:											
Labor	0.40194	0.17606	0.28138	0.20067	0.24126	0.35123	0.45290	0.64911	0.76542	0.34364	0.53407
Imports:											
Competitive	0.29956	0.57910	0.56045	0.51503	0.39534	0.41113	0.28211	0.19306	0.06807	0.42440	0.23507
Non-Competitive	0.00771	0.00000	0.00000	0.00000	0.00000	0.00000	0.00248	0.00000	0.00000	0.00000	0.00000
Total Inputs:	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

^a Excludes hotel/motel food service.

Table 3. Technical Coefficients for Ohio, 1992 (continued)

	Hay/Sugar Nut Crops	Forestry/ Fishing	Meats/Egg Processing	Dairy Processing	Proc Food/ Kindred Prod	Grain Milling Flour	Fats/ Oils	Beverage Processing	Wood Proc./ Paper/ Furn Mfg	Food Service
Food and Agricultural Sectors:										
Farm Inputs/Machinery	0.02448	0.03228	0.00045	0.00102	0.00559	0.00150	0.00118	0.00261	0.01158	0.00041
Dairy Farms	0.00229	0.00057	0.00000	0.13165	0.00000	0.00000	0.00000	0.00000	0.00000	0.00011
Poultry/Eggs	0.00403	0.05931	0.04377	0.00000	0.00622	0.00000	0.00000	0.00000	0.00000	0.00186
Cattle Feeding	0.00121	0.00106	0.17259	0.00022	0.00002	0.00000	0.00003	0.00000	0.00000	0.00003
Swine	0.00075	0.00070	0.10362	0.00013	0.00001	0.00000	0.00002	0.00000	0.00000	0.00002
Sheep and Goats	0.00064	0.00021	0.00452	0.00001	0.00016	0.00000	0.00000	0.00000	0.00000	0.00000
Food Grains	0.00014	0.00033	0.00000	0.00000	0.00008	0.02509	0.00001	0.00001	0.00001	0.00000
Feed Grains	0.00045	0.00106	0.00002	0.00001	0.00158	0.00312	0.00004	0.00026	0.00004	0.00001
Nursery/Horticulture	0.01518	0.04814	0.00001	0.00000	0.00294	0.00001	0.00001	0.00003	0.00005	0.00002
Fruits/Vegetables	0.00029	0.00071	0.00000	0.00000	0.00337	0.00016	0.00000	0.00113	0.00000	0.00079
Oil Bearing Crops	0.00109	0.00269	0.00000	0.00000	0.00420	0.00059	0.11701	0.00000	0.00000	0.00000
Hay/Sugar/Nut Crops	0.00453	0.00045	0.00001	0.00000	0.00286	0.00208	0.00021	0.00048	0.00001	0.00000
Forestry/Fishing/Ag Services	0.00864	0.02142	0.00001	0.00000	0.00001	0.00000	0.00001	0.00000	0.00003	0.00001
Meat/Egg Processing	0.00000	0.00080	0.08637	0.00006	0.01059	0.00297	0.01307	0.00001	0.00001	0.01430
Dairy Processing	0.00000	0.00001	0.00031	0.14275	0.01089	0.00025	0.00092	0.00028	0.00001	0.02445
Proc. Food & Kindred Products	0.00002	0.00170	0.00415	0.00948	0.01805	0.00884	0.00180	0.01130	0.00001	0.03525
Grain Milling/Flour	0.00000	0.00000	0.00030	0.00055	0.00223	0.00397	0.00020	0.00050	0.00001	0.00092
Fats/Oils	0.00001	0.00003	0.00013	0.00418	0.02517	0.00917	0.20153	0.00105	0.00007	0.00062
Beverage Processing	0.00000	0.00000	0.00001	0.00002	0.00009	0.00001	0.00000	0.00136	0.00000	0.00274
Wood/Paper/Furniture Mfg	0.00012	0.00630	0.00728	0.02468	0.02149	0.04215	0.01695	0.01653	0.03377	0.00289
Food Service ^a	0.00002	0.00016	0.00006	0.00009	0.00016	0.00016	0.00005	0.00022	0.00034	0.00031
General Manufacturing and Service Sectors:										
Mining	0.00022	0.00002	0.00007	0.00012	0.00013	0.00008	0.00023	0.00010	0.00051	0.00003
Construction	0.01397	0.01943	0.00323	0.00453	0.00473	0.00838	0.00297	0.01433	0.01051	0.01238
Apparel/Yarn/Leather	0.00009	0.00283	0.00001	0.00001	0.00049	0.00087	0.00001	0.00001	0.00040	0.00010
Motor Vehicle Equipment	0.00145	0.00072	0.00001	0.00003	0.00006	0.00004	0.00001	0.00006	0.00035	0.00004
Metal Industries	0.00107	0.00113	0.00084	0.00386	0.00760	0.00213	0.00188	0.04394	0.00586	0.00016
Chemical/Petroleum	0.01371	0.00848	0.00112	0.00405	0.00728	0.00289	0.00277	0.00336	0.02992	0.00091
Publishing	0.00011	0.00074	0.00890	0.01158	0.01482	0.02231	0.00791	0.02245	0.00482	0.00648
Stone/Clay/Glass	0.00012	0.00040	0.00001	0.00188	0.00698	0.00023	0.00194	0.04074	0.00207	0.00101
Machinery/Equipment	0.00202	0.00164	0.00025	0.00090	0.00119	0.00132	0.00094	0.00221	0.00463	0.00068
Technology Industries	0.00188	0.00063	0.00007	0.00006	0.00018	0.00010	0.00008	0.00018	0.00047	0.00006
Misc. Services	0.00692	0.01543	0.00477	0.00734	0.01222	0.01789	0.00525	0.01741	0.01259	0.01682
Transportation/Communication	0.01751	0.01514	0.01750	0.01077	0.03068	0.05669	0.03879	0.02674	0.03642	0.00996
Electricity/Gas/Sanitation	0.00663	0.00204	0.00809	0.01109	0.01027	0.01301	0.01344	0.00870	0.02788	0.01407
Wholesale/Retail	0.00473	0.00364	0.00465	0.00404	0.00445	0.00682	0.00366	0.00402	0.00504	0.00265
Financial/Legal	0.01802	0.01866	0.00140	0.00286	0.00575	0.00451	0.00256	0.00743	0.00710	0.01171
Real Estate/Development	0.04944	0.00064	0.00142	0.00224	0.00244	0.00282	0.00092	0.00180	0.00329	0.02220
Recreation/Amusement	0.00000	0.00160	0.00001	0.00002	0.00004	0.00006	0.00000	0.00007	0.00009	0.00356
Health Services	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001
Education Services	0.00000	0.00423	0.00000	0.00001	0.00009	0.00088	0.00000	0.00007	0.00121	0.00039
Government/Nonprofit	0.00217	0.00246	0.00126	0.00257	0.00301	0.00265	0.00175	0.00350	0.00591	0.00389
Others	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Primary Input:										
Labor	0.53042	0.36584	0.10276	0.23581	0.39041	0.30839	0.18222	0.35264	0.39679	0.56342
Imports:										
Competitive	0.26314	0.34726	0.41629	0.37760	0.35324	0.44454	0.37568	0.41244	0.39494	0.24416
Non-Competitive	0.00000	0.00178	0.00122	0.00365	0.02744	0.00099	0.00166	0.00176	0.00126	0.00039
Total Inputs:	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

^a Excludes hotel/motel food service.

Table 3. Technical Coefficients for Ohio, 1992 (continued)

	Mining	Construction	Apparel/ Yarn/ Leather	Motor Vehicle Equipment	Metal Industries	Chemical/ Petroleum	Publishing	Stone/Clay/ Glass	Machinery/ Equipment	Technology Industries	Misc.
Services											
Food and Agricultural Sectors:											
Farm Inputs/Machinery	0.00354	0.00035	0.00644	0.00054	0.00705	0.05325	0.00260	0.01837	0.00276	0.00222	0.00177
Dairy Farms	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Poultry/Eggs	0.00000	0.00000	0.00000	0.00000	0.00000	0.00006	0.00000	0.00000	0.00000	0.00000	0.00000
Cattle Feeding	0.00000	0.00000	0.00004	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Swine	0.00000	0.00000	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Sheep and Goats	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Food Grains	0.00000	0.00001	0.00000	0.00000	0.00001	0.00001	0.00000	0.00001	0.00000	0.00000	0.00000
Feed Grains	0.00001	0.00003	0.00002	0.00002	0.00003	0.00003	0.00002	0.00007	0.00001	0.00001	0.00000
Nursery/Horticulture	0.00002	0.00565	0.00082	0.00002	0.00001	0.00005	0.00001	0.00002	0.00002	0.00002	0.00011
Fruits/Vegetables	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Oil Bearing Crops	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hay/Sugar/Nut Crops	0.00000	0.00001	0.00009	0.00001	0.00001	0.00009	0.00001	0.00002	0.00000	0.00000	0.00000
Forestry/Fishing/Ag Services	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Meat/Egg Processing	0.00000	0.00000	0.00220	0.00000	0.00000	0.00034	0.00001	0.00000	0.00000	0.00047	0.00002
Dairy Processing	0.00000	0.00000	0.00001	0.00000	0.00001	0.00005	0.00001	0.00001	0.00001	0.00000	0.00000
Proc. Food & Kindred Products	0.00000	0.00000	0.00001	0.00000	0.00000	0.00007	0.00000	0.00001	0.00000	0.00000	0.00003
Grain Milling/Flour	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000
Fats/Oils	0.00000	0.00000	0.00001	0.00000	0.00000	0.00276	0.00000	0.00002	0.00000	0.00001	0.00000
Beverage Processing	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Wood/Paper/Furniture Mfg	0.00017	0.01792	0.01046	0.00471	0.00494	0.01396	0.00338	0.01464	0.00837	0.00697	0.00083
Food Service ^a	0.00010	0.00031	0.00051	0.00021	0.00034	0.00020	0.00068	0.00031	0.00042	0.00041	0.00066
General Manufacturing and Service Sectors:											
Mining	0.00404	0.00089	0.00011	0.00010	0.00278	0.00075	0.00006	0.00352	0.00011	0.00009	0.00005
Construction	0.05002	0.00133	0.00820	0.01001	0.02433	0.00745	0.00613	0.01424	0.01450	0.01027	0.00754
Apparel/Yarn/Leather	0.00004	0.00031	0.02182	0.01083	0.00077	0.00026	0.00011	0.00027	0.00014	0.00058	0.00042
Motor Vehicle Equipment	0.00054	0.00058	0.00011	0.10095	0.00082	0.00016	0.00020	0.00020	0.00162	0.00070	0.00049
Metal Industries	0.00222	0.01187	0.00242	0.01187	0.02703	0.05179	0.00435	0.00028	0.00405	0.02529	0.00103
Chemical/Petroleum	0.01174	0.01886	0.02498	0.00647	0.01190	0.08281	0.02046	0.01887	0.00829	0.00957	0.00506
Publishing	0.00127	0.00024	0.01125	0.00859	0.00777	0.00531	0.02930	0.00697	0.00831	0.00777	0.00597
Stone/Clay/Glass	0.00015	0.00254	0.00030	0.00493	0.00156	0.00358	0.00011	0.02902	0.00623	0.00586	0.00070
Machinery/Equipment	0.00791	0.01358	0.00289	0.02282	0.01125	0.00269	0.00248	0.00186	0.04129	0.00674	0.00264
Technology Industries	0.00025	0.00684	0.00051	0.01456	0.00085	0.00057	0.00257	0.00054	0.00709	0.09429	0.00668
Misc. Services	0.01081	0.05815	0.01522	0.01213	0.01553	0.01023	0.02828	0.01198	0.01722	0.01467	0.06328
Transportation/Communication	0.01690	0.02928	0.01705	0.03037	0.03063	0.02833	0.02187	0.05715	0.01697	0.01328	0.01076
Electricity/Gas/Sanitation	0.02876	0.00263	0.01085	0.00845	0.03372	0.02172	0.00846	0.03970	0.01382	0.00948	0.00491
Wholesale/Retail	0.00151	0.03370	0.00360	0.00568	0.00529	0.00371	0.00323	0.00298	0.00540	0.00404	0.00174
Financial/Legal	0.00451	0.01272	0.00872	0.00639	0.01017	0.00735	0.01465	0.00685	0.00917	0.01006	0.02505
Real Estate/Development	0.03281	0.00284	0.00426	0.00162	0.00293	0.00321	0.00837	0.00346	0.00458	0.00548	0.01529
Recreation/Amusement	0.00010	0.00025	0.00009	0.00028	0.00010	0.00010	0.00038	0.00007	0.00014	0.00042	0.00071
Health Services	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000	0.00001
Education Services	0.00162	0.00000	0.00341	0.00413	0.00106	0.00249	0.00132	0.00034	0.00106	0.00210	0.00155
Government/Nonprofit	0.00336	0.00109	0.00361	0.00268	0.00535	0.00268	0.00905	0.00436	0.00330	0.00268	0.00763
Others	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Primary Input:											
Labor	0.65100	0.46361	0.40713	0.28223	0.38350	0.36700	0.51256	0.52738	0.46348	0.45394	0.69739
Imports:											
Competitive	0.16147	0.31250	0.42379	0.42123	0.37939	0.36233	0.31922	0.22491	0.33530	0.31295	0.13318
Non-Competitive	0.00298	0.00002	0.00804	0.00829	0.00240	0.01044	0.00245	0.00677	0.00411	0.00911	0.00273
Total Inputs:	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

^a Excludes hotel/motel food service

Table 3. Technical Coefficients for Ohio, 1992 (continued)

	Transportation/ Communication	Electricity/ Gas/Sanitation	Wholesale/ Retail	Financial/ Legal	Real Estate/ Development	Recreation/ Amusement	Health Services	Education Services	Government/ Nonprofit	Others
Food and Agricultural Sectors:										
Farm Inputs/Machinery	0.00030	0.00181	0.00013	0.00001	0.00050	0.00005	0.00732	0.00154	0.00062	0.00000
Dairy Farms	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00002	0.00000	0.00000
Poultry/Eggs	0.00000	0.00000	0.00000	0.00000	0.00000	0.00002	0.00019	0.00001	0.00004	0.00000
Cattle Feeding	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Swine	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Sheep and Goats	0.00000	0.00000	0.00000	0.00000	0.00000	0.00003	0.00000	0.00001	0.00000	0.00000
Food Grains	0.00002	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Feed Grains	0.00011	0.00000	0.00001	0.00002	0.00000	0.00000	0.00000	0.00001	0.00001	0.00000
Nursery/Horticulture	0.00002	0.00007	0.00010	0.00004	0.00390	0.00348	0.00018	0.00297	0.00013	0.00000
Fruits/Vegetables	0.00000	0.00000	0.00000	0.00000	0.00000	0.00002	0.00006	0.00003	0.00001	0.00000
Oil Bearing Crops	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hay/Sugar/Nut Crops	0.00003	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00002	0.00000	0.00000
Forestry/Fishing/Ag Services	0.00000	0.00000	0.00004	0.00000	0.00000	0.00002	0.00000	0.00000	0.00000	0.00000
Meat/Egg Processing	0.00002	0.00000	0.00000	0.00000	0.00000	0.00074	0.00118	0.00127	0.00018	0.00000
Dairy Processing	0.00001	0.00000	0.00000	0.00000	0.00000	0.00049	0.00069	0.00380	0.00008	0.00000
Proc. Food & Kindred Products	0.00007	0.00000	0.00002	0.00000	0.00000	0.00211	0.00220	0.00226	0.00038	0.00000
Grain Milling/Flour	0.00000	0.00000	0.00000	0.00000	0.00000	0.00007	0.00013	0.00053	0.00002	0.00000
Fats/Oils	0.00000	0.00000	0.00000	0.00000	0.00000	0.00009	0.00013	0.00003	0.00002	0.00000
Beverage Processing	0.00002	0.00000	0.00004	0.00000	0.00000	0.00016	0.00005	0.00002	0.00001	0.00000
Wood/Paper/Furniture Mfg	0.00043	0.00040	0.00741	0.00025	0.00006	0.00047	0.00035	0.00267	0.00010	0.00000
Food Service ^a	0.00077	0.00012	0.00155	0.00182	0.00055	0.00060	0.00040	0.00071	0.00012	0.00000
General Manufacturing and Service Sectors:										
Mining	0.00012	0.00652	0.00009	0.00001	0.00000	0.00005	0.00012	0.00012	0.00012	0.00000
Construction	0.02621	0.09106	0.01819	0.01081	0.05501	0.01862	0.00845	0.09585	0.03172	0.00000
Apparel/Yarn/Leather	0.00014	0.00009	0.00023	0.00029	0.00001	0.00049	0.00071	0.00022	0.00014	0.00000
Motor Vehicle Equipment	0.01764	0.00267	0.00031	0.00018	0.00004	0.00009	0.00011	0.00045	0.00028	0.00000
Metal Industries	0.00605	0.00089	0.00052	0.00007	0.00005	0.00034	0.00034	0.00171	0.00009	0.00000
Chemical/Petroleum	0.02509	0.01520	0.00493	0.00136	0.00053	0.00183	0.01165	0.00672	0.00329	0.00000
Publishing	0.00423	0.00043	0.01381	0.00830	0.00399	0.00790	0.00192	0.01461	0.00368	0.00000
Stone/Clay/Class	0.00184	0.00015	0.00020	0.00013	0.00001	0.00005	0.00142	0.00296	0.00004	0.00000
Machinery/Equipment	0.00286	0.00117	0.00057	0.00005	0.00004	0.00017	0.00011	0.00029	0.00029	0.00000
Technology Industries	0.00440	0.00232	0.00054	0.00283	0.00014	0.00080	0.01511	0.00617	0.00029	0.00000
Misc. Services	0.02280	0.01135	0.04685	0.06869	0.01284	0.03750	0.02370	0.04831	0.00680	0.00000
Transportation/Communication	0.10865	0.01726	0.01943	0.02258	0.00346	0.00766	0.00474	0.01290	0.00666	0.00000
Electricity/Gas/Sanitation	0.00883	0.05180	0.01429	0.00412	0.00050	0.00890	0.00651	0.01136	0.00661	0.00000
Wholesale/Retail	0.01940	0.00123	0.00279	0.00079	0.00062	0.00070	0.00135	0.00181	0.00028	0.00000
Financial/Legal	0.01344	0.01499	0.02770	0.13278	0.03261	0.01359	0.00655	0.01817	0.00325	0.00000
Real Estate/Development	0.01886	0.00218	0.02638	0.02870	0.04702	0.02917	0.02816	0.06291	0.00644	0.00000
Recreation/Amusement	0.00938	0.00009	0.00274	0.00155	0.00032	0.09795	0.00042	0.00855	0.00088	0.00000
Health Services	0.00001	0.00000	0.00001	0.00002	0.00000	0.00001	0.01084	0.00001	0.00000	0.00000
Education Services	0.00067	0.00380	0.00009	0.00040	0.00002	0.00000	0.00024	0.00048	0.00019	0.00000
Government/Nonprofit	0.00358	0.00555	0.00684	0.01469	0.00268	0.00853	0.00527	0.01522	0.00293	0.00000
Others	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Primary Input:										
Labor	0.53361	0.55210	0.68512	0.48435	0.77132	0.58052	0.74461	0.47373	0.88607	1.00000
Imports:										
Competitive	0.15147	0.21343	0.11272	0.20856	0.06336	0.17428	0.11290	0.20002	0.03489	0.00000
Non-Competitive	0.01654	0.00011	0.00540	0.00517	0.00011	0.00170	0.00017	0.00073	0.00308	0.00000
Total Inputs:	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

^a Excludes hotel/motel food service

Table 4. Interdependence Coefficients for Ohio, 1992

	Farm Inputs/ Machinery	Dairy Farms	Poultry/ Eggs	Cattle Feeding	Swine	Sheep and Goats	Food Grains	Feed Grains	Nursery/ Horticulture	Vegetables/ Fruits	Oil Bearing Crops
Food and Agricultural Sectors:											
Farm Inputs/Machinery	1.11986	0.00626	0.00447	0.00908	0.00960	0.01070	0.03777	0.02246	0.01192	0.01580	0.01725
Dairy Farms	0.00001	1.00073	0.00115	0.00165	0.00175	0.00079	0.00047	0.00207	0.00004	0.00132	0.00090
Poultry/Eggs	0.00001	0.00186	1.00293	0.00102	0.00108	0.00084	0.00552	0.00401	0.00009	0.00390	0.00570
Cattle Feeding	0.00001	0.00076	0.00140	1.07039	0.00067	0.00055	0.00237	0.00114	0.00004	0.00155	0.00111
Swine	0.00001	0.00058	0.00106	0.00046	1.18052	0.00039	0.00161	0.00078	0.00003	0.00120	0.00078
Sheep and Goats	0.00000	0.00012	0.00014	0.00025	0.00026	1.05045	0.00061	0.00049	0.00003	0.00034	0.00039
Food Grains	0.00001	0.00043	0.00090	0.00053	0.00056	0.00051	1.00641	0.00010	0.00002	0.00074	0.00022
Feed Grains	0.00004	0.05377	0.00538	0.03614	0.03820	0.02633	0.00075	1.00358	0.00008	0.00255	0.00084
Nursery/Horticulture	0.00021	0.00317	0.00308	0.00200	0.00211	0.00148	0.00138	0.01629	1.12867	0.03654	0.00153
Fruits/Vegetables	0.00000	0.00069	0.00129	0.00039	0.00041	0.00030	0.00036	0.00020	0.00004	1.00276	0.00046
Oil Bearing Crops	0.00003	0.00340	0.00662	0.00175	0.00185	0.00320	0.00141	0.00080	0.00017	0.00622	1.03736
Hay/Sugar/Nut Crops	0.00001	0.03368	0.00306	0.02268	0.02397	0.01653	0.00035	0.00039	0.00003	0.00112	0.00038
Forestry/Fishing/Ag Services	0.00000	0.01973	0.03622	0.00905	0.00956	0.00719	0.01058	0.00601	0.00125	0.04753	0.01373
Meat/Egg Processing	0.00005	0.00024	0.00125	0.00155	0.00164	0.00148	0.00005	0.00003	0.00001	0.00007	0.00004
Dairy Processing	0.00008	0.00019	0.00115	0.00027	0.00028	0.00088	0.00002	0.00001	0.00001	0.00002	0.00002
Proc. Food & Kindred Products	0.00006	0.00878	0.02213	0.00822	0.00869	0.01118	0.00022	0.00017	0.00002	0.00024	0.00021
Grain Milling/Flour	0.00001	0.00006	0.00014	0.00005	0.00006	0.00008	0.00000	0.00000	0.00000	0.00000	0.00000
Fats/Oils	0.00024	0.00652	0.01488	0.00345	0.00364	0.01797	0.00024	0.00015	0.00003	0.00016	0.00016
Beverage Processing	0.00001	0.00002	0.00002	0.00001	0.00001	0.00003	0.00000	0.00000	0.00000	0.00000	0.00000
Wood/Paper/Furniture Mfg	0.00442	0.00155	0.00168	0.00117	0.00123	0.00138	0.00148	0.00080	0.00064	0.02679	0.00096
Food Service ^a	0.00047	0.00013	0.00008	0.00016	0.00017	0.00013	0.00021	0.00012	0.00021	0.00014	0.00019
General Manufacturing and Service Sectors:											
Mining	0.00194	0.00020	0.00013	0.00013	0.00014	0.00017	0.00053	0.00029	0.00008	0.00025	0.00021
Construction	0.02187	0.01668	0.00696	0.01929	0.02039	0.01286	0.02604	0.01567	0.00829	0.01363	0.02092
Apparel/Yarn/Leather	0.00024	0.00016	0.00017	0.00013	0.00014	0.00318	0.00016	0.00011	0.00007	0.00274	0.00015
Motor Vehicle Equipment	0.00342	0.00150	0.00084	0.00184	0.00195	0.00215	0.00233	0.00162	0.00067	0.00156	0.00184
Metal Industries	0.01427	0.00185	0.00114	0.00153	0.00162	0.00168	0.00219	0.00170	0.00052	0.00161	0.00146
Chemical/Petroleum	0.03413	0.01058	0.00876	0.00965	0.01020	0.00940	0.03262	0.01318	0.00666	0.01644	0.01164
Publishing	0.00852	0.00106	0.00107	0.00126	0.00134	0.00127	0.00171	0.00096	0.00148	0.00116	0.00133
Stone/Clay/Glass	0.00136	0.00054	0.00038	0.00035	0.00036	0.00036	0.00049	0.00030	0.00018	0.00043	0.00035
Machinery/Equipment	0.02520	0.00225	0.00156	0.00286	0.00303	0.00273	0.00382	0.00245	0.00084	0.00267	0.00281
Technology Industries	0.00243	0.00125	0.00080	0.00202	0.00213	0.00223	0.00280	0.00192	0.00044	0.00155	0.00238
Misc. Services	0.02767	0.00765	0.00467	0.01040	0.01099	0.00988	0.01544	0.00995	0.00823	0.01033	0.01405
Transportation/Communication	0.03635	0.04769	0.02525	0.04089	0.04322	0.03552	0.03379	0.01872	0.01265	0.02188	0.01741
Electricity/Gas/Sanitation	0.04641	0.01752	0.01265	0.00892	0.00943	0.01429	0.01309	0.00742	0.00368	0.01039	0.01027
Wholesale/Retail Trade	0.00613	0.00724	0.00314	0.00658	0.00696	0.00534	0.00791	0.00471	0.00330	0.00501	0.00488
Financial/Legal	0.01280	0.01119	0.00530	0.02032	0.02148	0.01309	0.03252	0.01891	0.00812	0.01779	0.04642
Real Estate/Development	0.00644	0.02310	0.00566	0.04395	0.04646	0.02354	0.08448	0.04092	0.00599	0.02807	0.07103
Recreation/Amusement	0.00069	0.00061	0.00037	0.00055	0.00058	0.00046	0.00052	0.00029	0.00022	0.00040	0.00036
Health Services	0.00001	0.00589	0.01006	0.01504	0.01590	0.01006	0.00012	0.00008	0.00000	0.00009	0.00009
Education Services	0.00083	0.00025	0.00027	0.00018	0.00019	0.00019	0.00028	0.00015	0.00007	0.00039	0.00021
Government/Nonprofit	0.00854	0.00366	0.00232	0.00459	0.00485	0.00390	0.00468	0.00255	0.00155	0.00248	0.00412
Others	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

^a Excludes hotel/motel food service

Table 4. Interdependence Coefficients for Ohio, 1992 (continued)

	Hay/Sugar Nut Crops	Forestry/ Fishing	Meat/Egg Processing	Dairy Processing	Proc Food/ Kindred Prod	Grain Milling/ Flour	Fats/ Oils	Beverage Processing	Wood Proc./ Paper/ Furn Mfg	Food Service
Food and Agricultural Sectors:										
Farm Inputs/Machinery	0.02929	0.03886	0.00405	0.00348	0.00826	0.00422	0.00522	0.00524	0.01592	0.00130
Dairy Farms	0.00232	0.00068	0.00063	0.15371	0.00175	0.00009	0.00033	0.00007	0.00000	0.00395
Poultry/Eggs	0.00461	0.06087	0.04840	0.00038	0.00698	0.00039	0.00165	0.00009	0.00001	0.00282
Cattle Feeding	0.00133	0.00143	0.20236	0.00045	0.00232	0.00073	0.00352	0.00004	0.00001	0.00302
Swine	0.00091	0.00103	0.13404	0.00031	0.00154	0.00048	0.00235	0.00003	0.00001	0.00201
Sheep and Goats	0.00068	0.00024	0.00529	0.00003	0.00024	0.00004	0.00015	0.00000	0.00000	0.00009
Food Grains	0.00015	0.00040	0.00022	0.00009	0.00015	0.02536	0.00006	0.00002	0.00001	0.00004
Feed Grains	0.00071	0.00155	0.01159	0.00831	0.00191	0.00323	0.00039	0.00030	0.00005	0.00047
Nursery/Horticulture	0.01811	0.05597	0.00085	0.00062	0.00372	0.00031	0.00034	0.00029	0.00022	0.00046
Fruits/Vegetables	0.00031	0.00082	0.00020	0.00015	0.00346	0.00020	0.00008	0.00117	0.00000	0.00092
Oil Bearing Crops	0.00122	0.00330	0.00094	0.00136	0.00844	0.00214	0.15205	0.00027	0.00003	0.00046
Hay/Sugar/Nut Crops	1.00471	0.00073	0.00726	0.00523	0.00311	0.00216	0.00045	0.00053	0.00002	0.00036
Forestry/Fishing/Ag Services	0.00916	1.02427	0.00458	0.00305	0.00064	0.00036	0.00211	0.00007	0.00004	0.00029
Meat/Egg Processing	0.00003	0.00103	1.09514	0.00034	0.01231	0.00356	0.01797	0.00018	0.00004	0.01614
Dairy Processing	0.00002	0.00014	0.00060	1.16671	0.01300	0.00044	0.00140	0.00049	0.00003	0.02902
Proc. Food & Kindred Products	0.00020	0.00318	0.00829	0.01265	1.01886	0.00912	0.00250	0.01156	0.00004	0.03646
Grain Milling/Flour	0.00000	0.00002	0.00036	0.00068	0.00230	1.00401	0.00027	0.00053	0.00002	0.00103
Fats/Oils	0.00018	0.00107	0.00221	0.00750	0.03238	0.01187	1.25256	0.00172	0.00022	0.00219
Beverage Processing	0.00000	0.00000	0.00002	0.00003	0.00009	0.00001	0.00000	1.00136	0.00000	0.00275
Wood/Paper/Furniture Mfg	0.00109	0.00779	0.00911	0.03093	0.02459	0.04498	0.02285	0.01912	1.03615	0.00536
Food Service ^a	0.00016	0.00031	0.00017	0.00021	0.00029	0.00032	0.00019	0.00037	0.00047	1.00043
General Manufacturing and Service Sectors:										
Mining	0.00037	0.00016	0.00022	0.00034	0.00034	0.00028	0.00051	0.00054	0.00085	0.00019
Construction	0.02029	0.02406	0.01216	0.01127	0.00968	0.01468	0.01151	0.02009	0.01722	0.01732
Apparel/Yarn/Leather	0.00018	0.00303	0.00010	0.00009	0.00058	0.00099	0.00009	0.00013	0.00049	0.00017
Motor Vehicle Equipment	0.00226	0.00149	0.00114	0.00072	0.00103	0.00160	0.00153	0.00099	0.00151	0.00047
Metal Industries	0.00221	0.00250	0.00191	0.00573	0.00919	0.00358	0.00357	0.04760	0.00757	0.00124
Chemical/Petroleum	0.01771	0.01334	0.00642	0.00953	0.01208	0.00915	0.00901	0.00862	0.03702	0.00334
Publishing	0.00128	0.00207	0.01095	0.01496	0.01710	0.02452	0.01140	0.02487	0.00625	0.00853
Stone/Clay/Class	0.00039	0.00074	0.00028	0.00263	0.00769	0.00070	0.00283	0.04245	0.00259	0.00162
Machinery/Equipment	0.00337	0.00335	0.00159	0.00206	0.00224	0.00249	0.00232	0.00379	0.00610	0.00133
Technology Industries	0.00271	0.00149	0.00106	0.00069	0.00086	0.00107	0.00107	0.00102	0.00132	0.00064
Misc. Services	0.01365	0.02336	0.01133	0.01372	0.01837	0.02564	0.01328	0.02520	0.01926	0.02308
Transportation/Communication	0.02421	0.02395	0.03727	0.02561	0.04195	0.07051	0.06083	0.03868	0.04678	0.01645
Electricity/Gas/Sanitation	0.00963	0.00616	0.01377	0.01865	0.01494	0.01762	0.02163	0.01487	0.03335	0.01699
Wholesale/Retail Trade	0.00637	0.00571	0.00813	0.00692	0.00646	0.00951	0.00716	0.00626	0.00714	0.00419
Financial/Legal	0.02536	0.02543	0.00988	0.00784	0.01046	0.01024	0.01329	0.01265	0.01189	0.01701
Real Estate/Development	0.05450	0.00418	0.01669	0.00776	0.00596	0.00857	0.01401	0.00460	0.00603	0.02561
Recreation/Amusement	0.00038	0.00222	0.00049	0.00037	0.00057	0.00092	0.00072	0.00058	0.00070	0.00422
Health Services	0.00010	0.00065	0.00518	0.00091	0.00014	0.00002	0.00010	0.00001	0.00000	0.00013
Education Services	0.00021	0.00451	0.00018	0.00024	0.00032	0.00118	0.00024	0.00035	0.00159	0.00055
Government/Nonprofit	0.00339	0.00397	0.00342	0.00444	0.00436	0.00423	0.00376	0.00511	0.00728	0.00505
Others	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

^a Excludes hotel/motel food service*

Table 4. Interdependence Coefficients for Ohio, 1992 (continued)

	Mining	Construction	Apparel/ Yarn/ Leather	Motor Vehicle Equipment	Metal Industries	Chemical/ Petroleum	Publishing	Stone/Clay/ Glass	Machinery/ Equipment	Technology Industries	Misc. Services
Food and Agricultural Sectors:											
Farm Inputs/Machinery	0.00518	0.00255	0.00953	0.00221	0.00975	0.06572	0.00470	0.02321	0.00463	0.00411	0.00272
Dairy Farms	0.00000	0.00000	0.00001	0.00001	0.00000	0.00001	0.00001	0.00001	0.00000	0.00001	0.00001
Poultry/Eggs	0.00000	0.00001	0.00012	0.00001	0.00000	0.00010	0.00001	0.00001	0.00000	0.00003	0.00001
Cattle Feeding	0.00000	0.00001	0.00050	0.00001	0.00001	0.00009	0.00001	0.00001	0.00000	0.00011	0.00001
Swine	0.00000	0.00000	0.00033	0.00001	0.00000	0.00006	0.00001	0.00000	0.00000	0.00007	0.00001
Sheep and Goats	0.00000	0.00000	0.00002	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000	0.00000	0.00001
Food Grains	0.00000	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00002	0.00000	0.00000	0.00000
Feed Grains	0.00002	0.00004	0.00005	0.00004	0.00004	0.00005	0.00003	0.00008	0.00002	0.00002	0.00001
Nursery/Horticulture	0.00057	0.00647	0.00108	0.00020	0.00027	0.00020	0.00015	0.00022	0.00019	0.00018	0.00031
Fruits/Vegetables	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Oil Bearing Crops	0.00001	0.00001	0.00002	0.00001	0.00001	0.00046	0.00001	0.00001	0.00001	0.00001	0.00000
Hay/Sugar/Nut Crops	0.00001	0.00001	0.00011	0.00001	0.00001	0.00010	0.00001	0.00003	0.00001	0.00001	0.00000
Forestry/Fishing/Ag Services	0.00000	0.00001	0.00002	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000
Meat/Egg Processing	0.00002	0.00003	0.00250	0.00006	0.00003	0.00048	0.00004	0.00003	0.00002	0.00059	0.00005
Dairy Processing	0.00002	0.00002	0.00005	0.00004	0.00004	0.00009	0.00004	0.00004	0.00003	0.00003	0.00004
Proc. Food & Kindred Products	0.00002	0.00003	0.00007	0.00004	0.00004	0.00012	0.00005	0.00005	0.00003	0.00004	0.00008
Grain Milling/Flour	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000	0.00001	0.00000	0.00000	0.00000
Fats/Oils	0.00006	0.00009	0.00013	0.00004	0.00007	0.00380	0.00009	0.00012	0.00005	0.00006	0.00003
Beverage Processing	0.00000	0.00000	0.00001	0.00000	0.00001	0.00001	0.00001	0.00001	0.00000	0.00000	0.00001
Wood/Paper/Furniture Manufactu	0.00170	0.01970	0.01199	0.00686	0.00663	0.01664	0.00434	0.01672	0.01008	0.00888	0.00144
Food Service ^a	0.00022	0.00051	0.00063	0.00038	0.00049	0.00035	0.00081	0.00047	0.00056	0.00056	0.00082
General Manufacturing and Service Sectors:											
Mining	1.00435	0.00104	0.00027	0.00036	0.00328	0.00117	0.00018	0.00406	0.00039	0.00030	0.00013
Construction	0.05698	1.00605	0.01234	0.01674	0.03247	0.01455	0.01021	0.02302	0.01988	0.01538	0.01141
Apparel/Yarn/Leather	0.00010	0.00042	1.02236	0.01241	0.00091	0.00036	0.00017	0.00037	0.00025	0.00072	0.00050
Motor Vehicle Equipment	0.00125	0.00154	0.00071	1.11331	0.00199	0.00127	0.00088	0.00188	0.00250	0.00138	0.00095
Metal Industries	0.00373	0.01378	0.00344	0.03345	1.05605	0.00659	0.00103	0.00588	0.02871	0.01560	0.00173
Chemical/Petroleum	0.01581	0.02375	0.03026	0.01174	0.01736	1.09517	0.02486	0.02617	0.01237	0.01392	0.00728
Publishing	0.00216	0.00216	0.01277	0.01148	0.00951	0.00729	1.03116	0.00861	0.01003	0.00981	0.00734
Stone/Clay/Glass	0.00052	0.00307	0.00061	0.00622	0.00208	0.00434	0.00039	1.03031	0.00701	0.00694	0.00096
Machinery/Equipment	0.00951	0.01508	0.00386	0.02767	0.01350	0.00515	0.00327	0.00350	1.04421	0.00856	0.00339
Technology Industries	0.00121	0.00859	0.00116	0.01880	0.00198	0.00145	0.00357	0.00160	0.00884	1.10474	0.00829
Misc. Services	0.01829	0.06825	0.02092	0.02063	0.02397	0.01781	0.03525	0.01981	0.02430	0.02186	1.07237
Transportation/Communication	0.02348	0.03826	0.02346	0.04322	0.04101	0.04022	0.02837	0.07132	0.02464	0.02052	0.01544
Electricity/Gas/Sanitation	0.03207	0.00639	0.01408	0.01362	0.03991	0.02956	0.01099	0.04667	0.01816	0.01346	0.00666
Wholesale/Retail	0.00419	0.03532	0.00496	0.00841	0.00788	0.00591	0.00452	0.00573	0.00727	0.00579	0.00275
Financial/Legal	0.00948	0.01979	0.01297	0.01199	0.01609	0.01267	0.02027	0.01231	0.01421	0.01555	0.03280
Real Estate/Development	0.03632	0.00694	0.00666	0.00476	0.00591	0.00620	0.01137	0.00680	0.00715	0.00837	0.01905
Recreation/Amusement	0.00046	0.00090	0.00046	0.00095	0.00066	0.00066	0.00085	0.00091	0.00052	0.00084	0.00111
Health Services	0.00000	0.00001	0.00002	0.00000	0.00000	0.00001	0.00001	0.00000	0.00000	0.00001	0.00002
Education Services	0.00187	0.00031	0.00372	0.00492	0.00145	0.00298	0.00157	0.00075	0.00136	0.00253	0.00177
Government/Nonprofit	0.00431	0.00275	0.00472	0.00432	0.00691	0.00438	0.01036	0.00592	0.00460	0.00400	0.00907
Others	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

^a Excludes hotel/motel food service

Table 4. Interdependence Coefficients for Ohio, 1992 (continued)

	Transportation/ Communication	Electricity/ Gas/Sanitation	Wholesale/ Retail	Financial/ Legal	Real Estate/ Development	Recreation/ Amusement	Health Services	Education Services	Government/ Nonprofit	Others
Food and Agricultural Sectors:										
Farm Inputs/Machinery	0.00271	0.00363	0.00100	0.00058	0.00092	0.00060	0.00938	0.00301	0.00110	0.00000
Dairy Farms	0.00001	0.00000	0.00001	0.00001	0.00000	0.00009	0.00012	0.00062	0.00001	0.00000
Poultry/Eggs	0.00001	0.00000	0.00001	0.00001	0.00000	0.00009	0.00027	0.00010	0.00005	0.00000
Cattle Feeding	0.00002	0.00001	0.00001	0.00001	0.00000	0.00018	0.00026	0.00027	0.00004	0.00000
Swine	0.00001	0.00000	0.00001	0.00001	0.00000	0.00012	0.00017	0.00018	0.00003	0.00000
Sheep and Goats	0.00000	0.00000	0.00000	0.00000	0.00000	0.00004	0.00001	0.00002	0.00001	0.00000
Food Grains	0.00003	0.00000	0.00000	0.00001	0.00000	0.00000	0.00001	0.00002	0.00000	0.00000
Feed Grains	0.00013	0.00001	0.00001	0.00003	0.00001	0.00003	0.00003	0.00007	0.00001	0.00000
Nursery/Horticulture	0.00043	0.00077	0.00043	0.00036	0.00501	0.00470	0.00045	0.00440	0.00041	0.00000
Fruits/Vegetables	0.00000	0.00000	0.00000	0.00000	0.00000	0.00004	0.00007	0.00004	0.00001	0.00000
Oil Bearing Crops	0.00002	0.00001	0.00001	0.00000	0.00000	0.00004	0.00005	0.00004	0.00001	0.00000
Hay/Sugar/Nut Crops	0.00004	0.00001	0.00001	0.00001	0.00001	0.00002	0.00002	0.00006	0.00001	0.00000
Forestry/Fishing/Ag Services	0.00000	0.00000	0.00004	0.00000	0.00001	0.00004	0.00002	0.00003	0.00000	0.00000
Meat/Egg Processing	0.00008	0.00003	0.00004	0.00005	0.00002	0.00095	0.00137	0.00146	0.00021	0.00000
Dairy Processing	0.00006	0.00003	0.00006	0.00007	0.00002	0.00068	0.00086	0.00451	0.00010	0.00000
Proc. Food & Kindred Products	0.00016	0.00003	0.00010	0.00010	0.00003	0.00244	0.00232	0.00243	0.00040	0.00000
Grain Milling/Flour	0.00001	0.00000	0.00000	0.00000	0.00000	0.00008	0.00014	0.00054	0.00002	0.00000
Fats/Oils	0.00013	0.00008	0.00003	0.00002	0.00001	0.00022	0.00031	0.00019	0.00006	0.00000
Beverage Processing	0.00003	0.00000	0.00005	0.00001	0.00000	0.00018	0.00005	0.00002	0.00001	0.00000
Wood/Paper/Furniture Mfg	0.00219	0.00280	0.00846	0.00092	0.00131	0.00132	0.00117	0.00545	0.00089	0.00000
Food Service ^a	0.00103	0.00026	0.00173	0.00223	0.00070	0.00079	0.00049	0.00093	0.00017	0.00000
General Manufacturing and Service Sectors:										
Mining	0.00032	0.00705	0.00025	0.00009	0.00008	0.00017	0.00022	0.00036	0.00021	0.00000
Construction	0.03462	0.09927	0.02379	0.01770	0.05925	0.02529	0.01245	0.10412	0.03360	0.00000
Apparel/Yarn/Leather	0.00048	0.00021	0.00031	0.00041	0.00006	0.00061	0.00078	0.00034	0.00018	0.00000
Motor Vehicle Equipment	0.02226	0.00376	0.00098	0.00097	0.00028	0.00046	0.00038	0.00113	0.00056	0.00000
Metal Industries	0.00877	0.00286	0.00129	0.00077	0.00096	0.00100	0.00110	0.00375	0.00069	0.00000
Chemical/Petroleum	0.03295	0.02098	0.00803	0.00406	0.00253	0.00404	0.01435	0.01184	0.00497	0.00000
Publishing	0.00652	0.00141	0.01543	0.01100	0.00499	0.00994	0.00291	0.01675	0.00412	0.00000
Stone/Clay/Class	0.00260	0.00066	0.00045	0.00040	0.00024	0.00025	0.00175	0.00358	0.00020	0.00000
Machinery/Equipment	0.00486	0.00321	0.00137	0.00079	0.00105	0.00085	0.00083	0.00237	0.00093	0.00000
Technology Industries	0.00659	0.00397	0.00158	0.00466	0.00098	0.00176	0.01732	0.00845	0.00078	0.00000
Misc. Services	0.03481	0.02253	0.05669	0.08839	0.02187	0.04921	0.02893	0.06390	0.01062	0.00000
Transportation/Communication	1.12788	0.02626	0.02603	0.03216	0.00791	0.01276	0.00827	0.02230	0.00955	0.00000
Electricity/Gas/Sanitation	0.01318	1.05674	0.01677	0.00645	0.00143	0.01148	0.00849	0.01455	0.00760	0.00000
Wholesale/Retail	0.02365	0.00544	1.00445	0.00244	0.00296	0.00214	0.00226	0.00626	0.00171	0.00000
Financial/Legal	0.02203	0.02171	0.03652	1.15850	0.04151	0.02138	0.01077	0.02874	0.00538	0.00000
Real Estate/Development	0.02518	0.00516	0.03090	0.03754	1.05153	0.03608	0.03132	0.06975	0.00761	0.00000
Recreation/Amusement	0.01193	0.00053	0.00348	0.00246	0.00058	1.10884	0.00064	0.00993	0.00112	0.00000
Health Services	0.00001	0.00000	0.00001	0.00003	0.00000	0.00002	1.01097	0.00003	0.00000	0.00000
Education Services	0.00110	0.00419	0.00034	0.00070	0.00011	0.00018	0.00042	1.00076	0.00028	0.00000
Government/Nonprofit	0.00544	0.00688	0.00844	0.01822	0.00383	0.01058	0.00615	0.01712	1.00334	0.00000
Others	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000

^a Excludes hotel/motel food service

Table 5. Multipliers, Direct and Total Effect for Income and Employment, Ohio, 1992

Sector:	Output Multiplier	Income			Employment		
		Direct Effect	Total Effect	Multiplier	Direct Effect	Total Effect	Multiplier
Food and Agricultural Sectors:							
Farm Inputs/Machinery	1.3848	0.3849	0.7193	1.8690	4.3985	12.5539	2.8541
Dairy Farms	1.3036	0.1728	0.6235	3.6085	10.3184	22.9843	2.2275
Poultry/Eggs	1.2005	0.2794	0.6717	2.4038	11.6187	23.4148	2.0153
Cattle Feeding	1.3607	0.1891	0.6666	3.5242	10.6698	24.2586	2.2736
Swine	1.4876	0.2260	0.7837	3.4673	11.2684	27.6619	2.4548
Sheep and Goats	1.3047	0.3338	0.9257	2.7731	17.6043	34.8157	1.9777
Food Grains	1.3373	0.4275	0.8960	2.0957	11.2656	23.7427	2.1075
Feed Grains	1.2015	0.6131	1.0398	1.6958	12.4367	25.1009	2.0183
Nursery/Horticulture	1.2064	0.7645	2.5245	3.3022	65.2532	123.1738	1.8876
Fruits/Vegetables	1.2878	0.3315	0.7608	2.2952	8.0521	22.3350	2.7738
Oil Bearing Crops	1.2941	0.5069	0.9424	1.8591	10.5686	22.4585	2.1250
Hay/Sugar/Nut Crops	1.2638	0.4893	0.9359	1.9126	11.2434	24.3494	2.1657
Forestry/Fishing/Ag Services	1.3560	0.3621	1.2648	3.4929	26.3380	55.8358	2.1200
Meats/Eggs Processing	1.6785	0.1008	0.5179	5.1370	3.7232	17.4534	4.6877
Dairy Processing	1.5307	0.2325	0.5378	2.3135	2.6342	11.1362	4.2276
Processed Food & Kindred Products	1.3107	0.3845	0.6748	1.7549	4.8911	12.7805	2.6130
Grain Milling/Flour	1.3216	0.3051	0.5779	1.8941	2.5528	9.7913	3.8355
Fats/Oils	1.6453	0.1774	0.5388	3.0369	1.9028	10.4107	5.4713
Beverage Processing	1.3019	0.3046	0.5826	1.9124	3.3857	10.6201	3.1367
Wood/Paper/Furniture Manufactu	1.2682	0.3831	0.7333	1.9142	7.8338	17.3105	2.2097
Food Service ^a	1.2577	0.4936	1.4996	3.0383	38.8916	68.2049	1.7537
General Manufacturing and Service Sectors:							
Mining	1.2339	0.5773	0.9194	1.5926	8.1843	17.3522	2.1202
Construction	1.2839	0.4593	0.9557	2.0807	11.6792	26.7327	2.2889
Apparel/Yarn/Leather	1.2069	0.4024	0.7889	1.9604	11.1858	22.2796	1.9918
Motor Vehicle Equipment	1.3749	0.2689	0.5697	2.1185	3.7421	11.5005	3.0733
Metal Industries	1.3003	0.3693	0.7127	1.9301	6.3252	15.4995	2.4504
Chemical/Petroleum	1.3461	0.3327	0.6272	1.8854	4.2924	11.5163	2.6830
Publishing	1.2096	0.4991	0.8732	1.7494	9.6721	20.4186	2.1111
Stone/Clay/Glass	1.3167	0.5128	0.9185	1.7911	8.7598	19.489	2.2248
Machinery/Equipment	1.2521	0.4535	0.8048	1.7746	8.0623	17.7309	2.1992
Technology Industries	1.2850	0.4473	0.8088	1.8083	7.6874	17.4300	2.2673
Misc. Services	1.2086	0.6848	1.4684	2.1443	27.2773	50.7278	1.8597
Transportation/Communication	1.3922	0.4863	1.0082	2.0730	10.7465	25.4300	2.3663
Electricity/Gas/Sanitation	1.3005	0.4851	0.7725	1.5923	3.5170	11.1166	3.1608
Wholesale/Retail	1.2491	0.5670	1.2870	2.2698	23.4713	44.6086	1.9006
Financial/Legal	1.3922	0.4475	1.0454	2.3359	12.0885	29.7489	2.4609
Real Estate/Development	1.2102	0.5501	0.7910	1.4379	3.6914	10.3734	2.8101
Recreation/Amusement	1.3097	0.5635	1.4355	2.5474	26.2736	53.1821	2.0242
Health Services	1.1779	0.7395	1.3310	1.7998	20.788	37.8926	1.8228
Education Services	1.4104	0.4737	1.4105	2.9775	27.6528	54.8435	1.9833
Government/Nonprofit	1.0970	0.8851	1.6450	1.8586	31.5997	54.1131	1.7125
Others	1.0000	1.0000	4.4362	4.4362	157.3305	260.2158	1.6539

^a Excludes hotel/motel food service

Table 6. Contributions of Food and Agriculture to Exports, Domestic and Foreign, Ohio, 1992

Sector	Total Exports	Domestic Exports	Foreign Exports	Percent Domestic	Share of Food & Ag Exports
	----- \$ Million -----			----- Percent -----	
Farm Inputs/Machinery	1,662	738	924	44.4	6.5
Farming	1,988	1,446	541	72.8	7.8
Dairy Farms	38	37	1	96.2	0.1
Poultry/Eggs	134	129	5	96.3	0.5
Cattle Feeding	12	9	3	75.9	0.0
Swine	23	22	1	96.4	0.1
Sheep and Goats	12	7	4	62.0	0.0
Food Grains	84	25	59	29.5	0.3
Feed Grains	432	248	184	57.3	1.7
Nursery/Horticulture	581	552	29	95.0	2.3
Fruits/Vegetables	32	9	22	29.3	0.1
Oil Bearing Crops	445	235	211	52.6	1.7
Hay/Sugar/Nut Crops	125	108	16	86.9	0.5
Forestry/Fishing/Ag Services	71	66	5	93.2	0.3
Processing	15,637	14,562	1,075	93.1	61.1
Food Processing	10,439	9,809	630	94.0	40.8
Meats/Eggs Processing	928	764	164	82.3	3.6
Dairy Processing	2,092	1,940	152	92.7	8.2
Proc Food/Kindred Products	4,195	4,023	172	95.9	16.4
Grain Milling/Flour	859	833	26	97.0	3.4
Fats/Oils	624	528	96	84.6	2.4
Beverage Processing	1,741	1,720	21	98.8	6.8
Wood Processing	5,198	4,753	445	91.4	20.3
Food/Forestry Wholesale/Retail	5,057	4,611	446	91.2	19.7
Food Service^a	1,266	1,244	22	98.3	4.9
Total Food and Ag Economy	25,610	22,601	3,008	88.3	100.0
Total Economy	178,580	152,457	26,123	85.4	

^a Excludes hotel/motel food service

Fig. 1. Major Linkages in Food System
Economic Transaction Flows Among Sectors

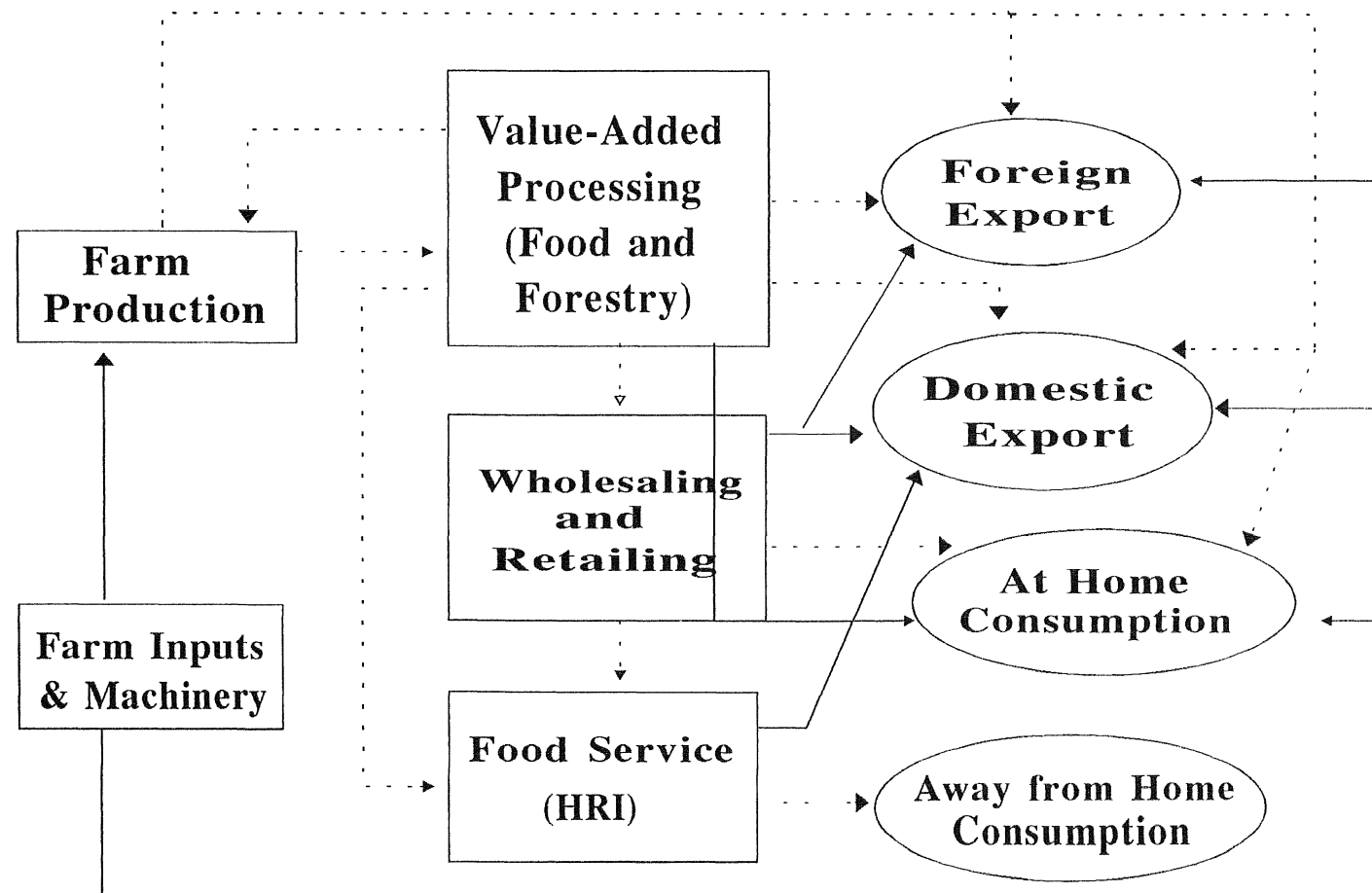


Figure 2. Ohio Economic Output Food and Agriculture, 1992

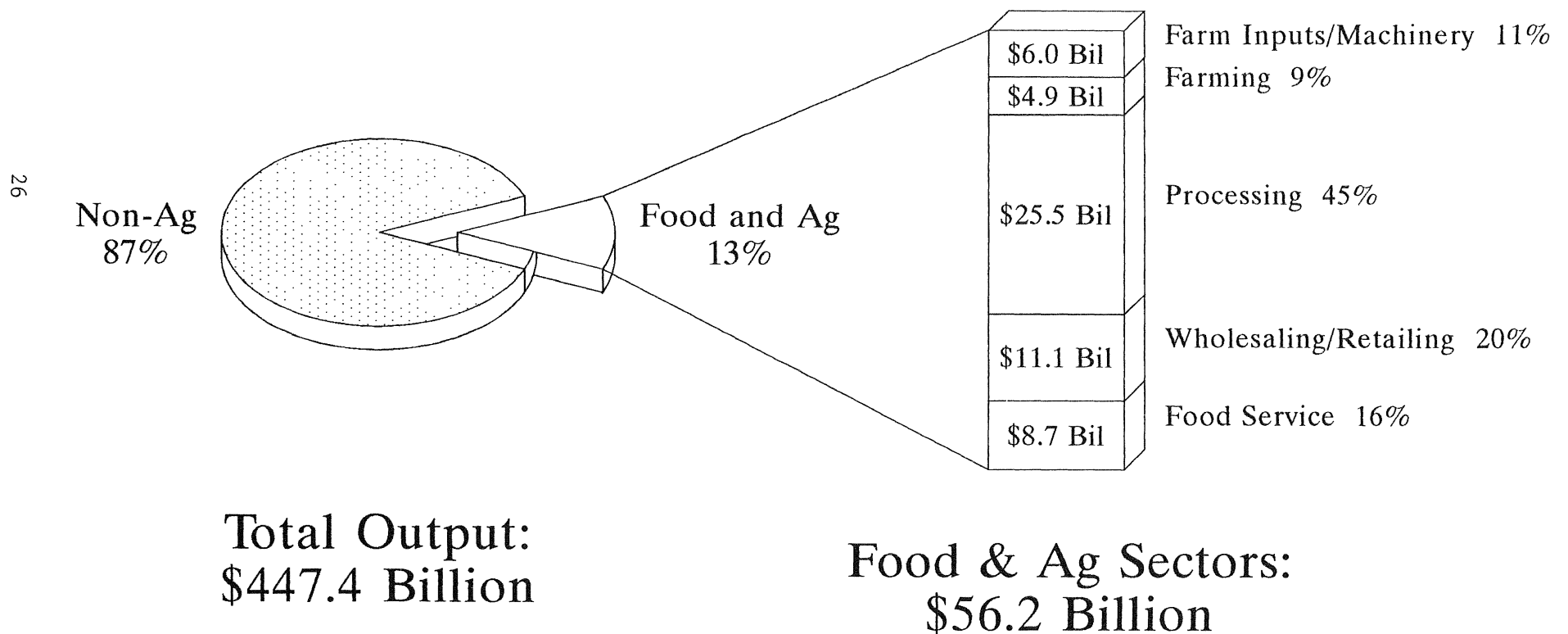
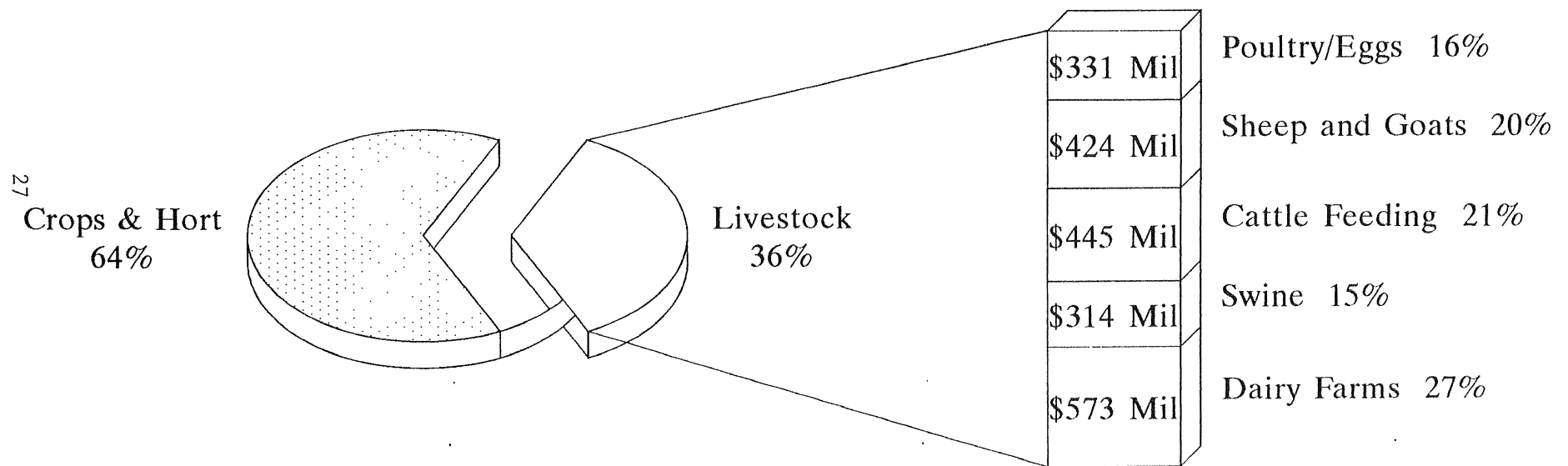


Figure 3. Ohio Agricultural Output Livestock Sectors, 1992



Total Livestock, Crops, & Hort:
\$4.8 Billion

Livestock Sectors:
\$1.7 Billion

Figure 4. Ohio Agricultural Output Crops & Horticulture Sectors, 1992

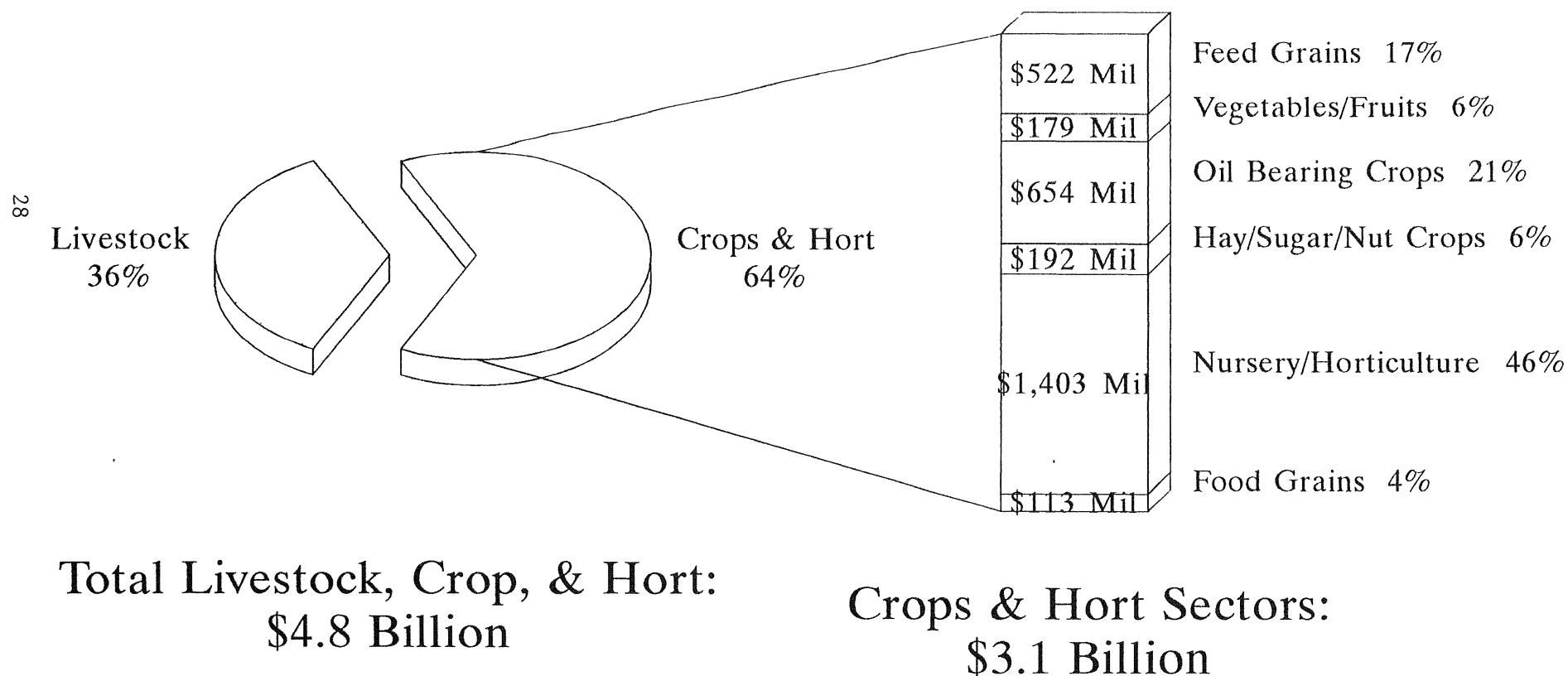


Figure 5. Ohio Value Added Food and Agriculture, 1992

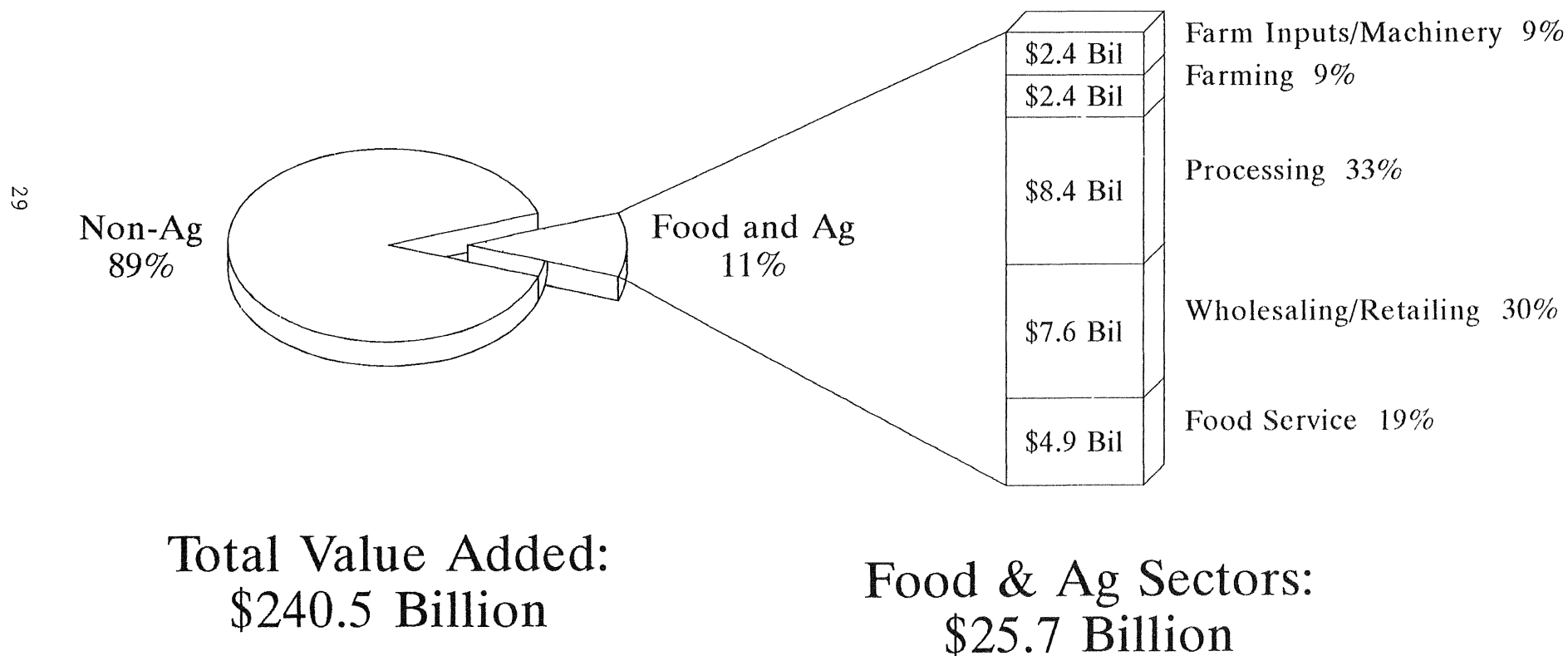


Figure 6. Ohio Employment Food and Agriculture, 1992

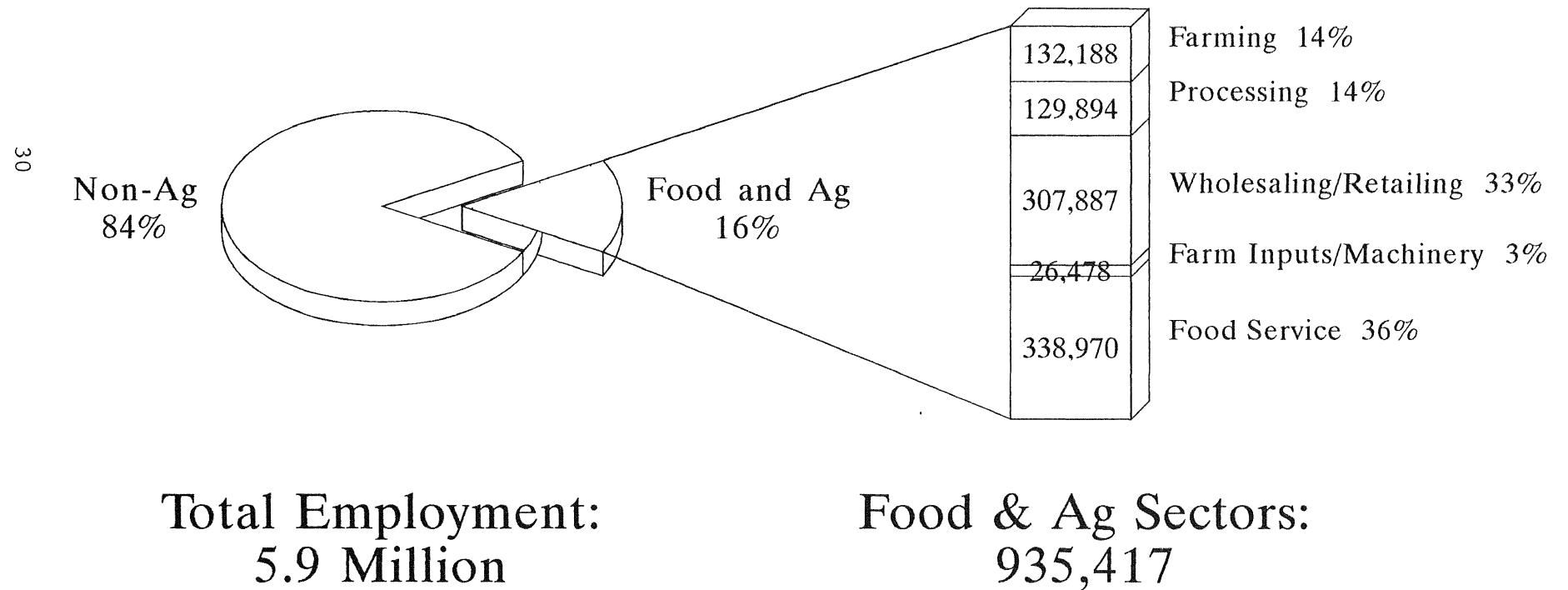
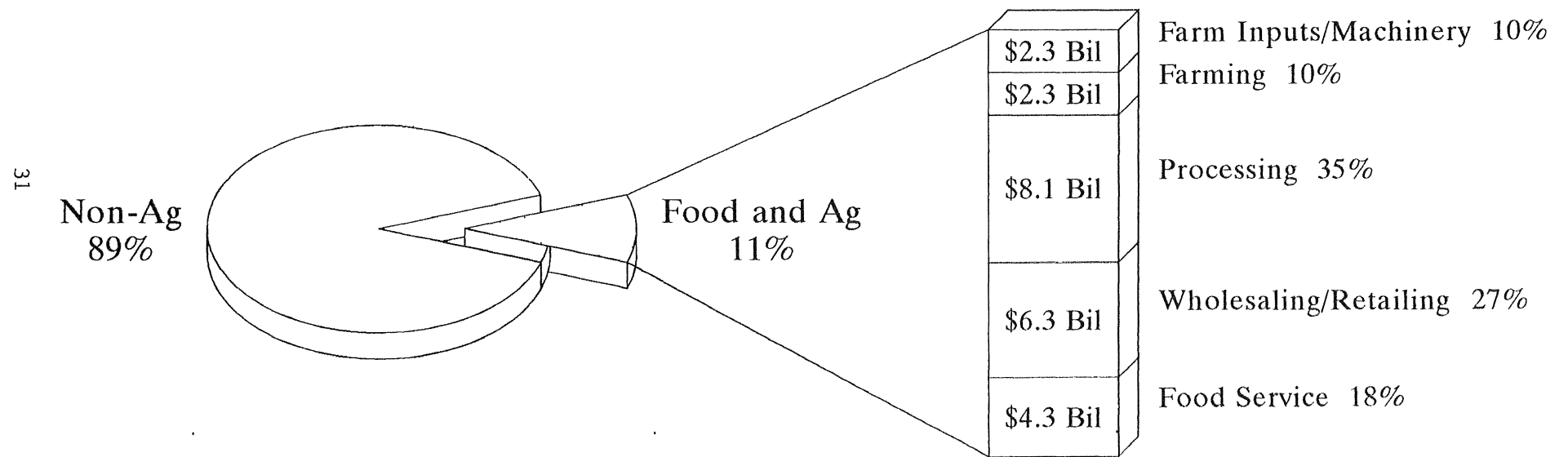


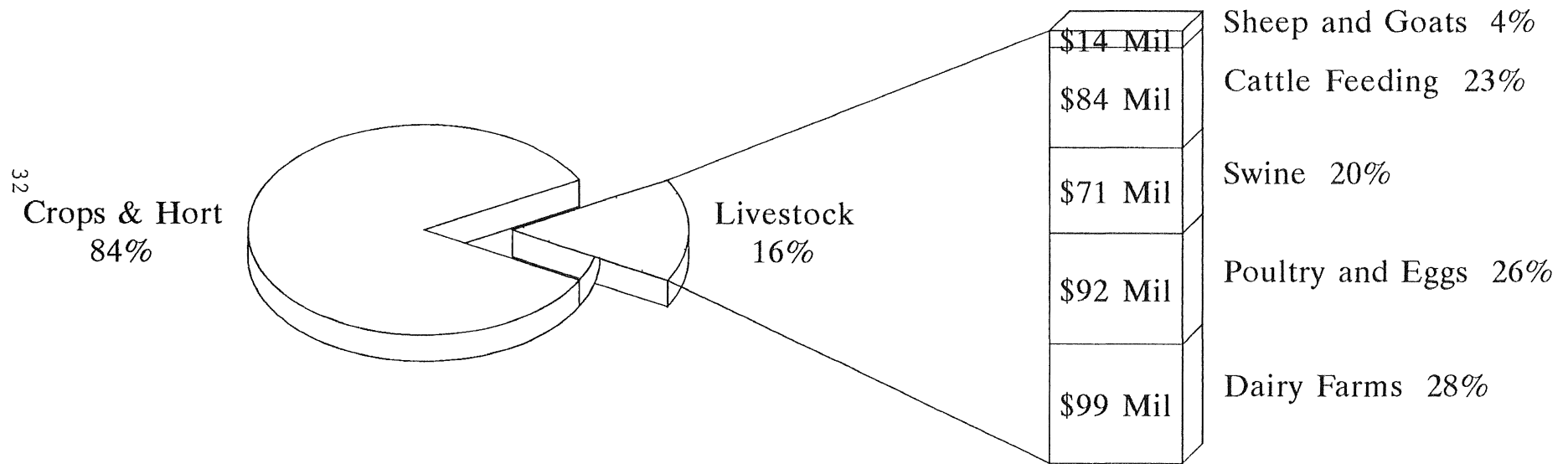
Figure 7. Ohio Income Food and Agriculture, 1992



Total Income:
\$221.4 Billion

Food & Ag Sectors:
\$23.3 Billion

Figure 8. Ohio Agricultural Income Livestock Sectors, 1992



Total Livestock, Crops, & Hort:
\$2.3 Billion

Livestock Sectors:
\$360 Million

Figure 9. Ohio Agricultural Income Crops & Horticulture Sectors, 1992

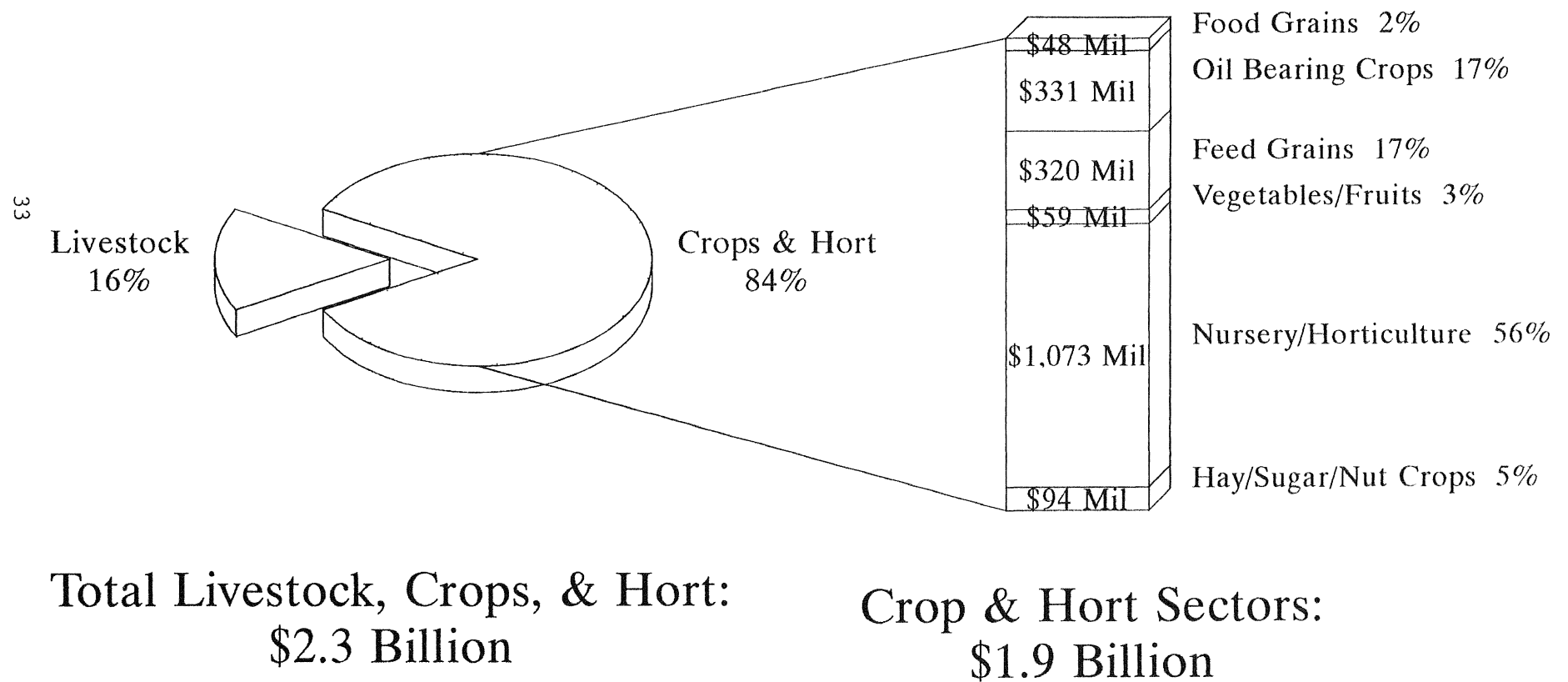


Figure 10. Ohio Domestic Exports Food and Agriculture, 1992

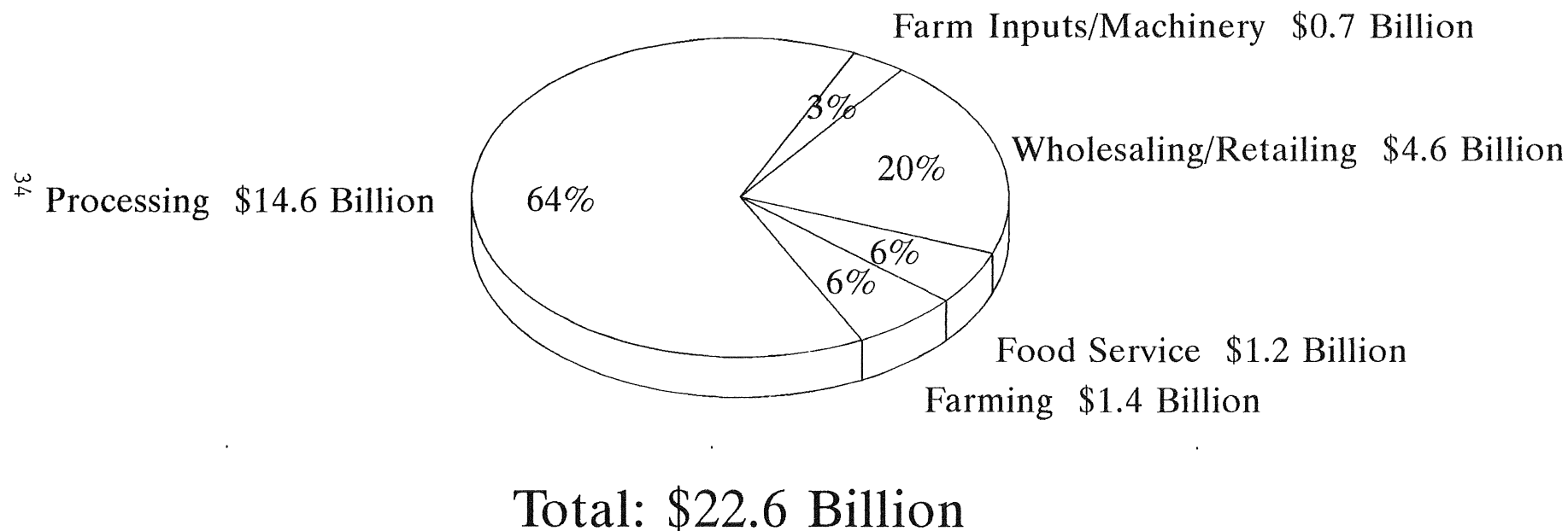
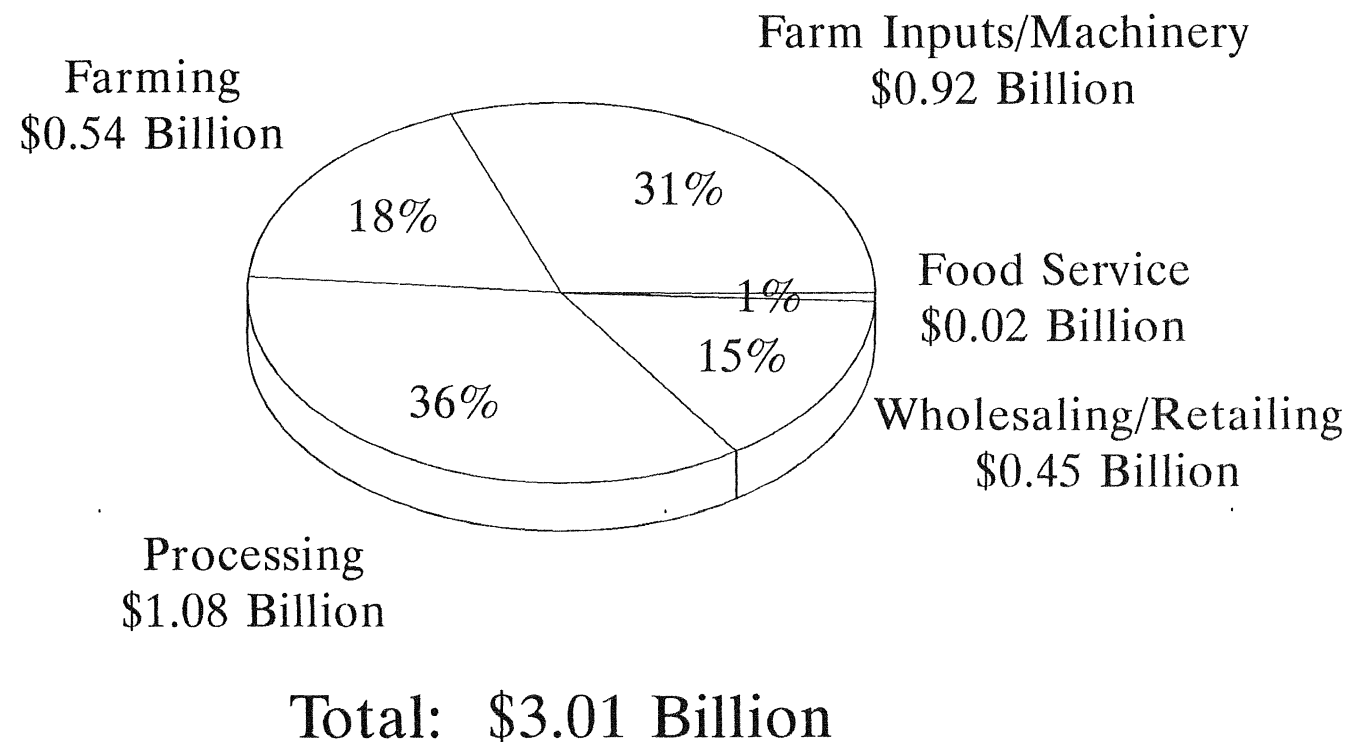


Figure 11. Ohio Foreign Export Shares Food and Agriculture, 1992



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Table A-1. OHFOOD: Ohio Input-Output Model Sector Definitions

Sector Name	Standard Industrial Classification (SIC)	
<u>Food and Related Agriculture Sectors</u>		
1. Farm Inputs/Machinery	Industrial Inorganic; Nitro. Fertilizer; Agricultural Chemicals; Farm Machinery (2812-13; 2816; 2819; 2865; 2869; 2873-75; 2879; 3523-24; 3535; 3556)	
2. Dairy Farms	0241; part of 0191, 0259, and 0291	
3. Poultry and Egg	0251-0253; part of 0191, 0219, 0259, and 0291	
4. Cattle Feeding	Ranch Fed Cattle; Range Fed Cattle; Cattle Feedlots. (0211; part of 0191, 0212, 0219, 0259, and 0291)	
5. Swine	0213; part of 0191, 0219, 0259, and 0291	
6. Other Livestock	Sheep, Lambs and Goats; Other Meat Animal Products; Misc. Livestock. (0214; 0271-72; part of 0191, 0219, 0259, 0273, 0279 and 0291)	
7. Food Grains	0111; 0112; part of 0191, 0219, 0259, and 0291	
8. Feed Grains	0115; part of 0139, 0191, 0219, 0259, and 0291	
9. Other Crops	Cotton; Hay and Pasture; Tobacco; Tree Nuts; Sugar Crops; Misc Crops. (0131-33; part of 0119, 0139, 0173, 1079, 0191, 0219, 0259, and 0291)	
10. Nursery/Horticulture	Grass Seeds; Greenhouse & Nursery Products; Landscape & Hort. Services. (0182; 0189; 0780; part of 0139, 0191, 0219, 0259, and 0291)	
11. Fruits and Vegetables	Fruits; Vegetables. (0134; 0161; 0171-72; 0174-75; part of 0119, 0139, 0179, 0219, 0259, and 0291)	0191
12. Oil Bearing Crops	0116; part of 0119, 0139, 0173, 0219, 0259, and 0291	
13. Forestry/Fishing/ Ag Services	Forest Products; Forestry Products; Commercial Fishing. (0710; 0720; 0750; 0760; 0254; 0810; 0830; 0850; 0910; 0920; 0970; part of 0279)	
14. Processed Meats/Eggs	Meat Packing Plants; Sausages & Other Prepared Meat; Poultry Dressing Plant; & Egg Processing; Fresh or Frozen Packaged Fish. (2011; 2013; 2015;	Food 202
15. Dairy Processing	Creamery Butter; Cheese, Natural and Processed; Condensed & Evaporated Ice Cream & Frozen Desserts; Fluid Milk. (2021-2024; 2026)	Milk
16. Processed Food and Kindred Products	Canned & Cured Sea Foods; Canned Specialties; (2032-2035; 2037-2038; 2047-2048; 2051-2052; 2061-2063; 2065-2068; 2087; 2091; 2095; 2097; 2098-2099; 2110-2140)	
17. Grain Milling/Flour	Flour & Other Grain Mill Prod.; Cereal Preparations; Rice Milling; (2041; 2043-2046)	
18. Beverage Processing	Malt Liquors; Malt; Wines; (2082-2086)	
19. Fats/Oils	Cottonseed Oil Mills; Soybean Oil Mills; Vegetable Oil Mills, N.E.C.; (2074-2077; 2079)	
20. Food Services	5800	
21. Wood/Paper	2410; 2421; 2426; 2429; 2431; 2434-2436; 2439; 2441; 2448-2449; 2452; 2491; 2493; 2499; 2511-2512; 2517; 2519; 2521; 2530; 2541; 2610-2630; 2650; 2671-2672; 2674-2679	

Table A-1. OHFOOD: Ohio Input-Output Model Sector Definitions (Continued)

Sector Name	SIC
<u>Non-Agricultural Sectors</u>	
22. Mining	1010-1030; 1041; 1044; 1060; 1080; 1094; 1099; 1200; 1310; 1320; 1410; 1420; 1440; 1450; 1474; 1475; 1479; 1480; 1490
23. Construction	1380; part of 15, 16, 17
24. Metal Industries	2514-2515; 2522; 2542-2599; 3312-3313; 3315-3317; 3320; 3331; 3334; 3339; 3340; 3261; 3353-3357; 3363-3366; 3369; 3398; 3399; 3411; 3412; 3421; 3423; 3425; 3429; 3431-3433; 3441-3444; 3446; 3448-3450; 3462-3466; 3469; 3471; 3479; 3482-3484; 3489; 3491-3494; 3498; 3495-3497; 3499; 3761; 3795
25. Apparel/Yarn/Leather	2210-2240; 2251-2254; 2257-2259; 2261-2262; 2269-2270; 2281-2284; 2295-2299; 2310-2380; 2391-2397; 2399; 3110; 3130; 3142-3144; 3149-3150; 3160; 3171-3172; 3190; 3965; 3991; 3996; 3999
26. Publishing	2410; 2421; 2426; 2429; 2431; 2434-2436; 2439; 2441; 2448; 2449; 2452; 2491; 2493; 2499; 2511; 2512; 2514; 2515; 2517; 2519; 2521; 2522; 2530; 2541; 2542; 2591; 2599; 2610-2630; 2650; 2710; 2720; 2731; 2732; 2671-2679; 2740-2770; 2782; 2789; 2791; 2796
27. Chemical/Petroleum	2673; 2821-2824; 2830; 2841-2844; 2850; 2861; 2891-2893; 2895; 2899; 2910; 2951; 2952; 2992; 2999; 3010-3030; 3052-3053; 3080
28. Stone/Clay/Glass	3210; 3221; 3229; 3230; 3240; 3251; 3253; 3255; 3259; 3261-3264; 3269; 3271-3275; 3280; 3291-3293; 3295-3297; 3299
29. Machinery and Equipment	3511; 3519; 3531-3534; 3536-3537; 3541-3549; 3552-3555; 3559; 3561-3569; 3581-3582; 3585; 3586; 3589; 3592; 3599; 3612-3613; 3621; 3625; 3629; 3631-3635; 3639; 3641; 3643-3648; 3825
30. Technology Industries	3571-3572; 3575; 3577-3579; 3596; 3593; 3594; 3651-3652; 3661; 3663; 3669; 3671-3679; 3691-3694; 3699; 3812; 3821-3827; 3829-3830; 3841-3845; 3850-3870; 3911; 3914-3915; 3930; 3942; 3944; 3949; 3951-3953; 3955; 3961
31. Motor Vehicle Equipment	2451; 3711; 3713-3716; 3721; 3724; 3728; 3731; 3732; 3740; 3750; 3764; 3769; 3792; 3799
32. Misc. Services	3993; 3995; 7000; 7210-7260; 7290; 7310-7320; 7331; 7334-7336; 7338; 7381-7383; 7389; 7340-7370; 7620-7640; 7690; 7510; 8710; 8730; 8740
33. Transportation/Communication	4010; 4040; 4100; 4200; 4400; 4500; 4720; 4730; 4783; 4785; 4810-4840; 4890; 7520; 7530; 7542; 7549; part of 4789
34. Electricity, Gas and Sanitary	4600; 4910; 4920; 4940; 4952-4953; 4959-4960; 4970; part of 493
35. All Wholesale/Retail Trade	5000-5570; 5900
35a. Food Wholesale/Retail Trade	5030; 5083; 5110; 5130; 5140; 5150; 5180; 5190; 5400; 5600
36. Financial/Legal	6000; 6100-6400; 6710; 6720; 6733; 6790; 8110; 8720; 8910; 8930; 8990
37. Real Estate/Development	6500
38. Recreation and Amusement	7800; 7910-7930; 7941; 7948; 7992-7993; 7996; 7997; 7999
39. Health Services	0740; 8010-8090; 8360
40. Education Services	8210-8240; 8290; 8230; 8350
41. Government and Nonprofit	4311; 6732; 8320; 8390; 8400; 8610-8660; 8690; 8922; part of 4100, 4190
42. Others	8800

Note: Food and non-food wholesale/retail trade are grouped together as Wholesale/Retail Trade in Tables 2-5.
Food and non-food wholesale/retail trade are presented as separate categories in Table 1.

Appendix A-2

STANDARD INDUSTRIAL CLASSIFICATION CODES

A Brief Explanation

The Standard Industrial Classification, or SIC, code is a commonly accepted means of classifying industries and is a federal government classification scheme. SIC's were developed under the direction of the Office of Management and Budget by the Technical Committee on Industrial Classification. The SIC code classifies establishments to the four-digit industry level by their primary type of activity. An additional four digits in the code narrows the classification down to a type of product. For example, in Sector 16 of Table B-1, processed food and kindred products, an eight digit SIC code identifies the industry group, industry, product class, and product. This is illustrated as follows:

<u>SIC Code</u>	<u>Level</u>	<u>Description</u>
20	Major Group	Food & Kindred Products
203	Industry Group	Canned Frozen & Preserved Fruits, Vegetables, & Food Specialties
2032	Industry	Canned Food Specialties
203202	Product Class	Ethnic Foods, canned & jarred
203202 12	Product	Tamales, packed in cans, jars

This study aggregates industries based on their four digit SIC definitions. Further detail, as shown above, is not necessary since this study aggregates on an industry basis. A particular item's location in the aggregation scheme can be identified by searching by its first four digits. The Standard Industrial Classification Manual can be found in any major library or is available from the Superintendent of Documents, U S Government Printing Office, Washington, DC

